

# LUFKIN

STEEL TAPES

WOVEN TAPES

TAPE-RULES

SPRING JOINT  
BOXWOOD RULES

LUMBER RULES

MISC. RULES Etc.

PRECISION TOOLS

ALPHABETICAL  
NUMERICAL INDEX

GENERAL  
CATALOG

12

RIEL HDWE. & MILL SUPPLY

129 Dwight Street  
SPRINGFIELD, MASS.













## GENERAL CATALOG

12

### STEEL TAPES

Tape Accessories

### WOVEN TAPES

### TAPE-RULES

### SPRING JOINT & BOXWOOD RULES

Aluminum Rules. Boxwood and Other Folding Wood Rules

### LUMBER RULES

Board Rules. Log Rules. Log Calipers. Boot Calks, Etc.

### MISCELLANEOUS RULES, ETC.

Glass Boards, Rules and Squares. Flat Wood, Yard and  
Meter Sticks. Tailors Squares, Rules and Tapes.  
Folding and One-Piece Metal Rules.

### PRECISION TOOLS

Micrometers. Combination and Other Squares.  
Calipers. Dividers. Steel Scales.  
Gages: Depth, Thickness, Surface, Telescoping, Radius, Etc.

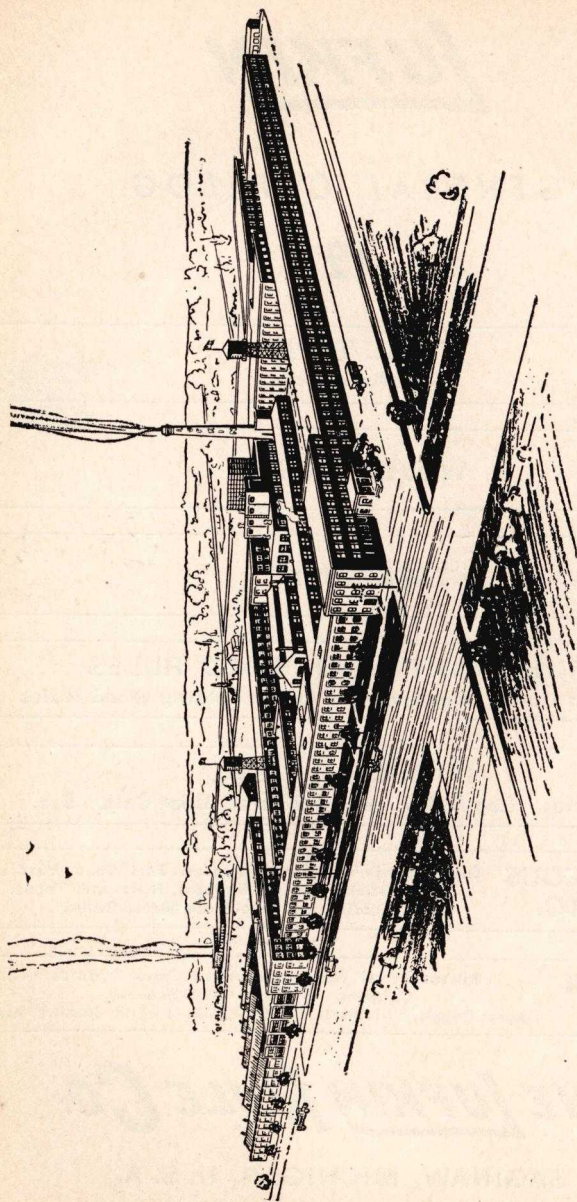
# *THE LUFKIN RULE Co.*

SAGINAW, MICHIGAN, U. S. A.

NEW YORK: 106-110 Lafayette St.

Canadian Factory

*THE LUFKIN RULE Co. OF CANADA, LTD.*  
WINDSOR, ONT.



PLANT OF

***THE LUFKIN RULE Co.***  
SAGINAW, MICHIGAN, U.S.A.



# *Introduction*

OUR product is Measuring Devices. In their manufacture this Company has specialized for fifty years. By steady growth it has become the world's largest maker of such goods. This position is merited by the high quality of the product, the progressive policies of the house, and its uniformly fair and considerate treatment of the consumer and the trade.

In the development of many of its products this Company has been the pioneer. Today, as through its whole history, it is the leader in the noteworthy improvements in its field. Its goods have world-wide distribution and are the recognized standard of accuracy wherever measurements are taken.

***THE LUFKIN RULE CO.***

## Section One



# STEEL MEASURING TAPES

**T**HE most complete assortment of Steel Tapes on the market is presented in this Catalog. These tapes are universally recognized as the standard of accuracy and highest quality in every respect.

Our tape steel is specially rolled for the purpose, and closely inspected. The cases, frames and reels are of best design and sturdy construction. Among other features our Steel Tapes have *Instantaneous* Readings and "Nubian" Finish, described below.

In connection with all Measuring Tapes the term "English," wherever used in this Catalog, designates feet and inches. "Graduated 12ths" is another term in common use meaning the same thing. As used through this Catalog, suffix "E" indicates English, suffix "M" metric. Tapes marked English only carry no suffix on stock number. Those marked metric only are designated by letter "M," those marked metric and English as "ME."

### *Instantaneous* READINGS



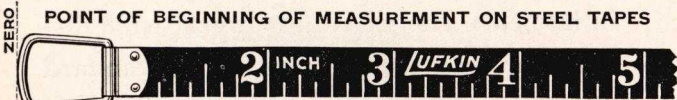
small yet easily read figures. This keeps the total reading directly before the eye, eliminates the chance of error in running back to the last foot, and saves time. The same system is used on our metric tapes.



Steel Tapes have *Instantaneous* Readings, a great improvement in numbering, of which we are the originators. The illustration herewith conveys the idea. Briefly described, it is the last preceding foot number repeated at each inch or tenth throughout the tape, in

### "NUBIAN" FINISH

This is the standard finish of our Steel Tapes. It consists of a dead black background, against which the raised lines and figures or portions of tape that are in relief are in the natural steel color, therefore in marked contrast, easiest to read. This finish wears and looks well, and resists rust.



Tape Measuring From Outer End of Ring



Tape With Blank Space First End

*Long Steel Measuring Tapes Marked One Side Measure from Outer End of Ring, Except:*  
Engineers Pattern Tapes. (Measure from end of tape.)  
Chain Tapes. (Regularly made in two ways as catalogued.)

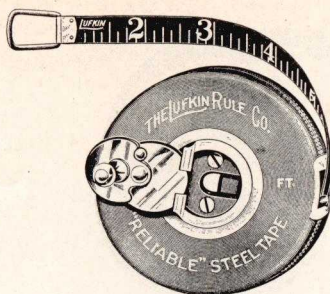
*Long Steel Measuring Tapes Marked Both Sides Have Blank Space First End, Except:*  
Engineers Pattern Tapes. (Measure from end of tape.)  
Tapes Marked Links On Back.

*"Artisan" and Pocket Steel Tapes With Ring Have Blank Space First End.*

(The above are standard practices. However, any of our Steel Tapes, except Pocket Tapes, will be furnished either way without extra charge.)

*Note: For information on tension and temperature standards, standardization, etc., see page 64.*





## “Reliable” Steel Tapes

No. 200 Series.  $\frac{3}{8}$  Inch Wide.

The Finest and Best Tape in the World

Suitable for all general measuring work. Made throughout of specially selected materials, and in design, construction and finish represents the best of our long experience in the manufacture of tapes.

Line is clearly marked, has “Nubian” Finish and “Instantaneous” Readings, aids to accurate and quick reading. Case of brown, selected, genuine leather, closely hand-stitched, with substantial steel liner heavily plated. The winding handle is double-folding flush pattern, opened by pressing on opposite side. It has extension finger hold, affording most firm grip. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only

Feet, inches and 8ths.....	No.	<b>200</b>	<b>201</b>	<b>203</b>	<b>204</b>	<b>205</b>	<b>206</b>	<b>207</b>
Feet, 10ths and 100ths ft. ....	No.	<b>200D</b>	<b>201D</b>	<b>203D</b>	<b>204D</b>	<b>205D</b>	<b>206D</b>	<b>207D</b>
Length, feet.....		25	33	50	66	75	100	150
Weight each, ozs.....		9	10	13	15	18	21	32
Price, each.....		\$5.50	\$6.30	\$8.60	\$10.90	\$12.50	\$15.00	\$22.00

### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

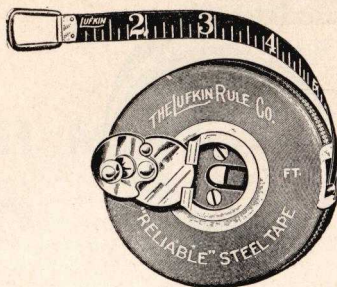
No.....	<b>200<math>\frac{1}{2}</math>ME</b>	<b>200ME</b>	<b>201ME</b>	<b>203ME</b>	<b>204ME</b>	<b>205ME</b>	<b>205<math>\frac{1}{2}</math>ME</b>	<b>206ME</b>	<b>207ME</b>
Length, meters.....	5	7 $\frac{1}{2}$	10	15	20	22	25	30	50
Length, feet.....	15	25	33	50	66	75	82	100	164
Price, each.....	\$5.60	\$6.00	\$7.00	\$9.60	\$12.30	\$14.00	\$15.00	\$17.00	\$27.00

### Marked 100ths of Feet and Metric

One Side Feet, 10ths and 100ths; Other Side Metric (as detailed above).

No.....	<b>203DM</b>	<b>206DM</b>
Length.....	50 ft. (15 meters)	100 ft. (30 meters)
Price, each.....	\$9.60	\$17.00

NOTES: Feet, Inches and 16ths—“Reliable” Tapes so marked, 5% extra.  
 Links on Back—Furnished at small extra charge. Specify as **200L**.  
 Wider “Reliable” Tapes—See pages 6 and 7.  
 Metric Only—“Reliable” Tapes so marked, prices same as feet and inches.



## “Reliable” Steel Tapes

No. 300 Series. 1/2 Inch Wide.

A Tape of the Highest Grade and Extra Durability

Like all “Reliable” Tapes, this one is a superior article throughout, made from most choice materials and by the best methods known.

Being 1/2 inch wide it is extra durable, and accommodates large, most legible figures. The line has “Instantaneous” Readings and “Nubian” Finish. Case of brown, selected genuine leather, closely hand-stitched, with heavily plated substantial steel liner. The double-folding flush handle is opened by pressing on opposite side and has extension finger hold, giving firm grip for winding. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only

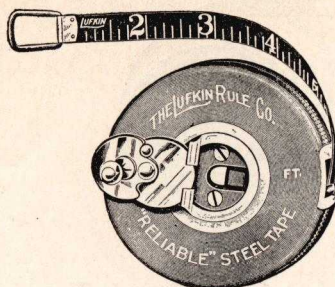
Feet, inches and 8ths. ....	No. <b>300</b>	<b>301</b>	<b>303</b>	<b>304</b>	<b>305</b>	<b>306</b>
Feet, 10ths and 100ths ft. ....	No. <b>300D</b>	<b>301D</b>	<b>303D</b>	<b>304D</b>	<b>305D</b>	<b>306D</b>
Length, feet. ....	25	33	50	66	75	100
Weight each, ozs. ....	11	13	16	20	23	27
Price, each. ....	\$6.00	\$7.00	\$9.60	\$12.30	\$14.00	\$17.00

### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths,								
No.....	<b>300½ME</b>	<b>300ME</b>	<b>301ME</b>	<b>303ME</b>	<b>304ME</b>	<b>305ME</b>	<b>305½ME</b>	<b>306ME</b>
Length, meters	5	7½	10	15	20	22	25	30
Length, feet...	15	25	33	50	66	75	82	100
Price, each....	\$6.00	\$6.50	\$7.70	\$10.60	\$13.60	\$15.50	\$16.80	\$19.00

NOTES: Feet, Inches and 16ths—“Reliable” Tapes so marked, 5% extra.  
 Links on Back—Furnished at small extra charge. Specify as **300L**.  
 Metric Only—“Reliable” Tapes so marked, prices same as feet and inches.





## “Reliable” Steel Tapes (Extra Wide)

### Nos. 343 and 353 Series

#### Widest of All Our Steel Tapes

While of same thickness as our other “Reliable” Tapes, these lines being  $\frac{5}{8}$  and  $\frac{3}{4}$  inch wide, are extra durable, and have larger, more prominent figures. They are of the very finest materials and construction throughout.

Lines have “Instantaneous” Readings and “Nubian” Finish. Cases of brown, selected, genuine leather, closely hand-stitched, and with plated steel liner. The winding handle is double-folding flush pattern, opened by pressing on opposite side. It has extension finger hold, giving most firm grip. Mountings nickel plated. Measurements guaranteed accurate.

#### With Five-Eighths Inch Tape Line Marked One Side Only

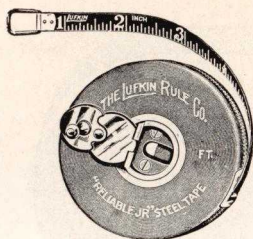
Feet, inches and 8ths.....No.	341	343	345	346
Length, feet.....	33	50	75	100
Weight each, ozs.....	15	19	27	31
Price, each.....	\$8.40	\$11.40	\$16.70	\$20.40

#### With Three-Quarters Inch Tape Line Marked One Side Only

Feet, inches and 8ths.....No.	353	356
Length, feet.....	50	100
Weight each, ozs.....	22	33
Price, each.....	\$12.90	\$23.00

NOTES: Metric and English—All above tapes can be furnished so marked at extra charge.

Links on Back—Furnished at small extra charge. Specify as **343L** or **353L**.



## “Reliable Junior” Steel Tapes

**No. 100 Series.  $\frac{1}{4}$  Inch Wide.**

**A Miniature “Reliable”**

**The Finest, Light Weight, Long Steel Tape Made**

While this is a light weight tape,  $\frac{1}{4}$  inch wide, it will give good service, and is most compact and convenient to carry in vest pocket. Case of the 25 foot is but  $2\frac{1}{2}$  inches in diameter and that of the 50 foot,  $2\frac{3}{4}$  inches. The “Junior” is about one-half the weight of the  $\frac{3}{8}$  inch “Reliable,” and embodies its improved features. It is of such neat and fine appearance that it has become popular for gift uses also.

The line is distinctly marked and has “Instantaneous” Readings and “Nubian” Finish. Case is of brown, selected, genuine leather, closely hand-stitched, and has plated steel liner. Double-folding flush winding handle is opened by pressing on opposite side and has extension finger hold. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only

Feet, inches and 16ths.....No.	<b>100</b>	<b>103</b>
Feet, 10ths and 100ths ft.....No.	<b>100D</b>	<b>103D</b>
Length, feet.....	25	50
Weight each, ozs.....	5	7
Price, each.....	\$5.10	\$7.70

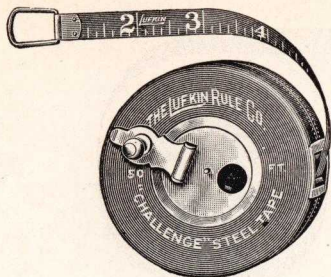
### Marked Metric and English

One Side First Decimeter in MM., Balance in CM.,  
Other Side Feet, Inches and 16ths.

No.....	<b>101ME</b>	<b>103ME</b>
Length, meters.....	10	15
Length, feet.....	33	50
Price, each.....	\$6.30	\$8.70

**NOTE:** Metric Only—“Reliable Jr.” Tapes so marked, prices same as feet and inches.





## “Challenge” Steel Tapes

No. 260 Series.  $\frac{3}{8}$  Inch Wide.

The Standard, High Grade, General Purpose Steel Tape

The “Challenge” has become the recognized standard steel tape in leather case through its many years of steady, dependable service in construction work and many other fields. It stands up well even in hard and continuous use.

Line of highest grade tape steel, distinctly marked, and with “Nubian” Finish and “Instantaneous” Readings, aids to accurate and quick reading. Case of brown, selected, genuine leather, closely hand-stitched, and with substantial and heavily plated steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only

Feet, inches and 8ths. . . . . No.	260	261	263	264	265	266	267
Feet, 10ths and 100ths ft. . No.	260D	261D	263D	264D	265D	266D	267D
Length, feet. . . . .	25	33	50	66	75	100	150
Weight each, ozs. . . . .	8	9	11	14	17	21	31
Price, each. . . . .	\$4.90	\$5.30	\$6.00	\$7.50	\$7.80	\$10.20	\$17.00

### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

No. . . . .	260 $\frac{1}{2}$ ME	260ME	261ME	263ME	264ME	265ME	265 $\frac{1}{2}$ ME	266ME	267ME
Length, meters. . . . .	5	7 $\frac{1}{2}$	10	15	20	22	25	30	50
Length, feet. . . . .	15	25	33	50	66	75	82	100	164
Price, each. . . . .	\$4.60	\$5.40	\$6.00	\$7.00	\$8.80	\$9.30	\$10.20	\$12.20	\$21.00

### Marked 100ths of Feet and Metric

One Side Feet, 10ths and 100ths; Other Side Metric (as detailed above).

No. . . . .	263DM	266DM
Length. . . . .	50 ft. (15 meters)	100 ft. (30 meters)
Price, each. . . . .	\$7.00	\$12.20

NOTES: Feet, Inches and 16ths—“Challenge” Tapes so marked, 5% extra.

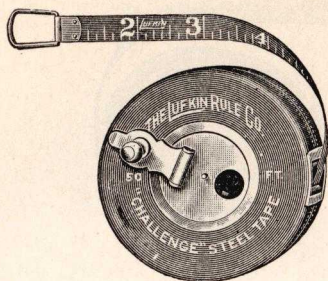
Stainless Steel “Challenge” Tapes—See page 11.

$\frac{1}{2}$ -Inch “Challenge” Tapes—See page 10.

Links on Back—Furnished at small extra charge. Specify as **260L**.

Metric Only—“Challenge” Tapes so marked, prices same as feet and inches.





## “Challenge” Steel Tapes

No. 360 Series. 1/2 Inch Wide.

Extra Durable and Suitable for Heavy Duty,  
as Highway Work, and Around Mills, Etc.

Same as the 3/8 inch “Challenge,” but with line 1/2 inch wide. The extra width makes this a somewhat sturdier tape and it has larger figures.

Line of highest grade tape steel, distinctly marked. It has “Instantaneous” Readings and “Nubian” Finish, aids to accurate and quick reading. Case of brown, selected, genuine leather, closely hand-stitched and with substantial plated steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only

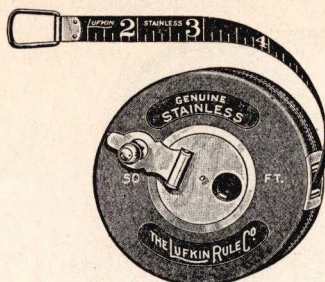
Feet, inches and 8ths . . . . .	No. 360	361	363	364	365	366	367
Feet, 10ths and 100ths ft. . . . .	No. 360D	361D	363D	364D	365D	366D	367D
Length, feet. . . . .	25	33	50	66	75	100	150
Weight each, ozs. . . . .	9	11	14	17	21	25	38
Price, each. . . . .	\$5.70	\$6.00	\$6.80	\$8.30	\$9.00	\$11.30	\$19.00

### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.									
No. . . . .	360 1/2 ME	360 ME	361 ME	363 ME	364 ME	365 ME	365 1/2 ME	366 ME	367 ME
Length, meters. . . . .	5	7 1/2	10	15	20	22	25	30	50
Length, feet. . . . .	15	25	33	50	66	75	82	100	164
Price, each. . . . .	\$5.00	\$6.20	\$6.70	\$7.80	\$9.60	\$10.50	\$11.70	\$13.30	\$22.50

NOTES: Feet, Inches and 16ths—“Challenge” Tapes so marked, 5% extra.  
 Stainless Steel “Challenge” Tapes—See page 11.  
 Links on Back—Furnished at small extra charge. Specify as **360L**.  
 Metric Only—“Challenge” Tapes so marked, prices same as feet and inches.





## Stainless Steel Tapes ("Challenge" Pattern)

### Nos. S-260 and S-360 Series.

**Most Suitable for Use Where Rust and Corrosion Cause Much Trouble**

These are standard weight lines of Stainless Steel, rust-proof and non-corrosive, with cases identical with the "Challenge." We use only Genuine Stainless Steel of the particular analysis found best for measuring tapes. In temper it approaches standard tape steel. It holds its shape, and hence its accuracy, better than other rust-proof materials such as phosphor bronze and monel metal.

The lines are clearly marked and have "Instantaneous" Readings and "Nubian" Finish. The cases are of brown, selected, genuine leather, closely hand-stitched, and have substantial plated steel liners. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

#### With Three-Eighths Inch Stainless Tape Line, Marked One Side Only

Feet, inches and 8ths. . . . . No.	S-260	S-263	S-265	S-266
Feet, 10ths and 100ths ft. . . . . No.	S-260D	S-263D	S-265D	S-266D
Length, feet. . . . .	25	50	75	100
Price, each. . . . .	\$7.30	\$10.70	\$14.80	\$19.50

#### With Three-Eighths Inch Stainless Tape Line, Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

No. . . . .	S-260ME	S-263ME	S-265 $\frac{1}{2}$ ME	S-266ME
Length, meters. . . . .	7 $\frac{1}{2}$	15	25	30
Length, feet. . . . .	25	50	82	100
Price, each. . . . .	\$7.90	\$12.00	\$18.40	\$22.20

#### With One-Half Inch Stainless Tape Line, Marked One Side Only

Feet, inches and 8ths. . . . . No.	S-360	S-363	S-365	S-366
Feet, 10ths and 100ths ft. . . . . No.	S-360D	S-363D	S-365D	S-366D
Length, feet. . . . .	25	50	75	100
Price, each. . . . .	\$8.50	\$12.30	\$17.40	\$22.40

#### With One-Half Inch Stainless Tape Line, Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

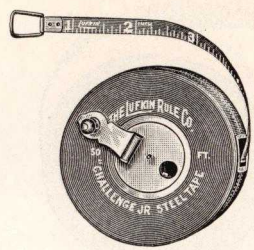
No. . . . .	S-360ME	S-363ME	S-365 $\frac{1}{2}$ ME	S-366ME
Length, meters. . . . .	7 $\frac{1}{2}$	15	25	30
Length, feet. . . . .	25	50	82	100
Price, each. . . . .	\$9.20	\$13.80	\$21.60	\$25.30

NOTES:  $\frac{3}{8}$  Inch Stainless Steel Lines can also be supplied in "Reliable," and "Rival" Cases, and in Nos. 283 and 1283 series Frames.

$\frac{1}{2}$  Inch Stainless Steel Lines can also be supplied in "Reliable" Cases and in 1293 series Frames.

Feet, Inches and 16ths—Any above stainless steel tapes so marked, 5% extra.





# “Challenge Junior” Steel Tapes

No. 1260 Series. ¼ Inch Wide.

Ideal for Those Who Want a Smaller, Lighter Weight “Challenge”

A counterpart of the “Challenge,” but about one-half its weight. Well built, and a very popular vest pocket steel tape, diameter of the 25 foot case being but 2½ and of the 50 foot, 2¾ inches.

Line of highest grade tape steel, clearly marked, and with “Instantaneous” Readings and “Nubian” Finish, aids to accurate and quick reading. Case of brown, selected, genuine leather, closely hand-stitched, and with plated steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

## Marked One Side Only

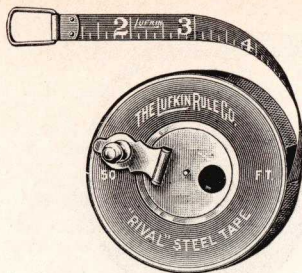
Feet, inches and 16ths. . . . .	No.	1260	1263
Feet, 10ths and 100ths ft. . . . .	No.	1260D	1263D
Length, feet. . . . .		25	50
Weight each, ozs. . . . .		4	7
Price, each. . . . .		\$4.70	\$5.70

## Marked Metric and English

One Side First Decimeter in MM., Balance in CM.,  
Other Side Feet, Inches and 16ths.

No. . . . .	1261ME	1263ME
Length, meters. . . . .	10	15
Length, feet. . . . .	33	50
Price, each. . . . .	\$5.60	\$6.70

NOTE: Metric Only—“Challenge Jr.” Tapes so marked, prices same as feet and inches.



## "Rival" Steel Tapes

### No. 240 Series. $\frac{3}{8}$ Inch Wide.

**Metal Case Well Withstands the Action of Grease and Grit**

The "Rival" is a general purpose steel tape in metal case. We recommend its use where case comes much in contact with tools, with metal, oil or abrasives. Among other places it is a popular tape for tool chests and around sheet and tube mills.

Line of highest grade tape steel, clearly marked, and with "Instantaneous" Readings and "Nubian" Finish. Well finished metal case, heavily nickel plated, and with knurled edge, affording firm grip. Folding flush handle opened by pressing pin on opposite side. Measurements guaranteed accurate.

#### Marked One Side Only

Feet, inches and 8ths.....	No. 240	241	243	244	245	246
Feet, 10ths and 100ths ft.....	No. 240D	241D	243D	244D	245D	246D
Length, feet.....	25	33	50	66	75	100
Weight each, ozs.....	8	9	11	14	15	20
Price, each.....	\$4.50	\$4.80	\$5.40	\$6.90	\$7.20	\$9.30

#### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.								
No.....	240 $\frac{1}{2}$ ME	240ME	241ME	243ME	244ME	245ME	245 $\frac{1}{2}$ ME	246ME
Length, meters.....	5	7 $\frac{1}{2}$	10	15	20	22	25	30
Length, feet....	15	25	33	50	66	75	82	100
Price, each....	\$4.30	\$5.00	\$5.50	\$6.40	\$8.20	\$8.70	\$9.50	\$11.30

## "Rival Junior" Steel Tapes

### No. 1240 Series. $\frac{1}{4}$ Inch Wide.

Of same pattern as the "Rival" described above, but narrower and of about one-half its weight. Diameter of case of the 25-foot is  $2\frac{1}{4}$  and of the 50 foot  $2\frac{11}{16}$  inch. Line has "Instantaneous" Readings and "Nubian" Finish. Nickel plated metal case with knurled edge. Folding flush handle opened by push pin. Measurements guaranteed accurate.

#### Marked One Side Only

Feet, inches and 16ths.....	No. 1240	1243
Feet, 10ths and 100ths ft.....	No. 1240D	1243D
Length, feet.....	25	50
Weight each, ozs.....	4	6
Price, each.....	\$4.20	\$5.20

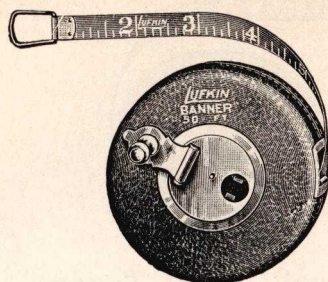
#### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 16ths.		
No.....	1241ME	1243ME
Length.....	10 meters (33 feet)	15 meters (50 feet)
Price, each.....	\$5.30	\$6.20

NOTES: "Rival" Tapes in Feet, Inches and 16ths—5% extra.

Metric Only—"Rival" or "Rival Jr." Tapes so marked, prices same as feet and inches.





## **“Banner” Steel Tapes**

**No. 550 Series.  $\frac{3}{8}$  Inch Wide.**

**A Medium Priced, Dependable and Attractive Steel Tape**

The “Banner” introduced steel tape accuracy to many who had always used woven tapes. It remains the best of medium priced steel tapes on the market, and its durability and good appearance still keep it a popular hardware item.

Standard weight line of high grade tape steel, distinctly marked. It has “Instantaneous” Readings and “Nubian” Finish. Case of mottled, black “Keratul,” hand-stitched. This is a very durable material, of good appearance. Case has substantial, plated, steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

### **Marked One Side Only**

Feet, inches and 8ths. . . . .	No. <b>550</b>	<b>553</b>	<b>555</b>	<b>556</b>
Feet, 10ths and 100ths ft. . . . .	No. <b>550D</b>	<b>553D</b>	<b>555D</b>	<b>556D</b>
Length, feet. . . . .	25	50	75	100
Weight each, ozs. . . . .	7	11	17	19
Price, each. . . . .	\$3.80	\$4.70	\$6.10	\$7.80

### **Marked Metric and English**

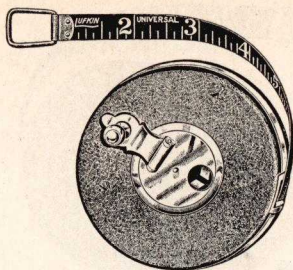
One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

No. . . . .	<b>551ME</b>	<b>553ME</b>	<b>555<math>\frac{1}{2}</math>ME</b>	<b>556ME</b>
Length, meters. . . . .	10	15	25	30
Length, feet. . . . .	33	50	82	100
Price, each. . . . .	\$4.80	\$5.60	\$8.30	\$9.60

NOTES: Feet, Inches and 16ths—“Banner” Tapes so marked, 5% extra.

Links on Back—Furnished at small extra charge. Specify as **550L**.

Metric Only—“Banner” Tapes so marked, prices same as feet and inches.



## “Universal” Steel Tapes

No. 540 Series.  $\frac{3}{8}$  Inch Wide.

**Lowest Priced Steel Tape, Yet Accurate and Serviceable**

The accuracy obtainable only in a steel tape has become more and more essential in many lines of work. No carpenter or other mechanic can now afford to be without it. The popular priced “Universal” has brought an accurate long steel tape well within the reach of all mechanics and thousands of others. Therefore it has displaced many woven tapes and has become a standard stock article throughout the hardware trade.

A  $\frac{3}{8}$  inch wide, standard weight, steel tape, clearly marked, with “Instantaneous” Readings and “Nubian” Finish. The metal lined case is covered with mottled, black “Keratom,” a good looking and extra durable material. It has  $\frac{3}{16}$  inch wide, flat, flush, nickel plated edge band. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only

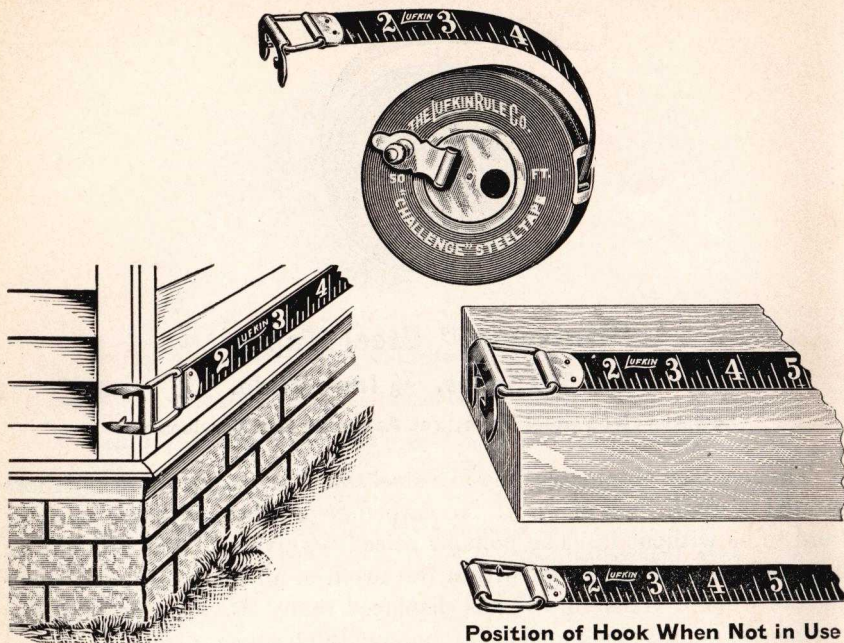
Feet, inches and 8ths.....No.	540	543	545	546
Length, feet.....	25	50	75	100
Weight each, ozs.....	6	10	15	17
Price, each.....	\$2.80	\$3.10	\$4.30	\$5.30

NOTES: Links on Back—Furnished at small extra charge. Specify as **540L**.

Metric and English—“Universal” Steel Tapes so marked can be supplied at an extra charge. Specify as No. **541ME-10** meter, **543ME-15** meter, **544ME-20** meter, **545½ME-25** meter, **546ME-30** meter.

Metric Only—“Universal” Steel Tapes so marked, prices same as feet and inches.





## Hook-Ring on $\frac{3}{8}$ Inch Wide Steel Tapes (PATENTED)

**Can Be Supplied on Any of Our  $\frac{3}{8}$  Inch Wide Steel Tapes.**

**Enables One Man to Take Many Measurements Unassisted**

This Hook-Ring will hold tape at end of a board, corner of a building on to metal sheets, pipe, and many other things, as here illustrated. It is a small, yet sturdy, 2-pronged, folding steel hook, permanently affixed to tape-ring, not detachable. It is readily folded flat against the tape-ring, out of the way, and then will not catch objects or prevent tape line being fully wound into the case.

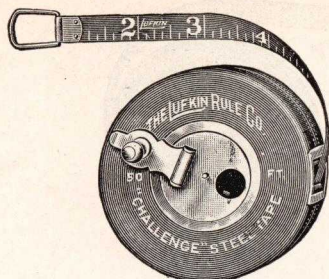
Zero falls at inside of open hook. This hook-ring has two prongs,  $\frac{3}{4}$  inch apart, each prong having an anchor spur, hence it takes a firm, square hold on the article to be measured. The prongs grip when tape is under tension, also prevent losing hold by side sway; yet the tape releases itself when tension is released. Hook does not flop loosely, but has friction, holding it in position both when open and closed. When folded it does not hinder use of the tape without hook.

**Hook-Ring on Any of Our  $\frac{3}{8}$  Inch Steel Tapes . . . . . \$0.20 Extra Per Tape**

**(Specify by prefixing "H" to stock number of tape, as "H-263 Challenge," "H-543 Universal," etc.)**

NOTE: Detachable Steel Tape Hooks—See page 52.





## “Challenge” Steel Tapes with Diameter Measure

Applied to Circumference Give at Direct Reading  
Diameter as Well as Circumference

A “Challenge” pattern tape marked one side standard feet, inches and 8ths, “Instantaneous” Readings, other side diameter equivalents of circumferences in diameter feet and inches, with extra diameter inch before zero subdivided to 64ths. With this tape applied to the circumference of any cylindrical body one can read directly not only the circumference, but the diameter down to 64ths of an inch. Very convenient about pulleys, shafting, piping, columns, tanks, etc.

Three-eighths inch wide, highest grade steel line in “Nubian” Finish. Blank space first end. Case of brown, selected, genuine leather, hand-stitched, with plated steel liner. Folding flush handle opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

### Marked Standard Linear Measure One Side, Diameter Measure Other Side

	Length	Wt. Each	Price, Each
No. 261P	33 feet (10½ dia. feet).....	9 ozs.	\$7.00
No. 263P	50 feet (15½ dia. feet).....	11 ozs.	8.40

## “Challenge” Steel Tapes in Consecutive Inches

For Any Work Requiring Long Measurements Expressed in Inches

Standard pattern “Challenge” Tapes but with inches numbered consecutively, i.e., 25 foot tape has inches numbered 1 to 300, 50 foot tape 1 to 600. Three-eighths inch wide high grade steel tape, distinctly marked and with “Nubian” Finish. Case of brown, selected, genuine leather, hand-stitched and with plated metal liner. Folding flush handle opened by pressing pin on opposite side. Mountings nickel plated. Measurements guaranteed accurate.

### Marked One Side Only, Consecutive Inches to 8ths of Inches

	Length	Wt. Each	Price, Each
No. 260C	300 inches (25 feet).....	8 ozs.	\$6.40
No. 263C	600 inches (50 feet).....	11 ozs.	7.80

(We can supply, at extra charge, tapes marked consecutive inches to 8ths one side, feet, inches and 8ths other side.)



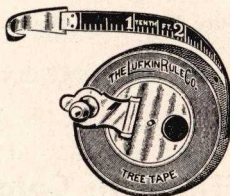


## “Challenge” Tree Tapes

**Give at Direct Reading Diameter as Well as Circumference of the Tree**

Used by the United States Forest Service, as well as by private foresters, and in ranger schools, etc. Three-eighths inch wide highest grade steel line in “Nubian” Finish. Marked on front side standard feet, 10ths and 100ths of feet, “Instantaneous” Readings; other side diameter equivalents of circumferences in diameter feet, inches and 10ths of inches. First end has blank space and is fitted with tree peg or spike, which folds down for convenience in carrying. Case same as the “Challenge,” of brown, selected, genuine leather, with plated steel liner and with folding flush handle opened by push pin.

	Length	Wt. Each	Price, Each
No. 261TP	33 feet (10½ dia. feet).....	10 ozs.	\$ 9.00
No. 263TP	50 feet (15½ dia. feet).....	12 ozs.	11.30



## “Artisan” Tree Tape

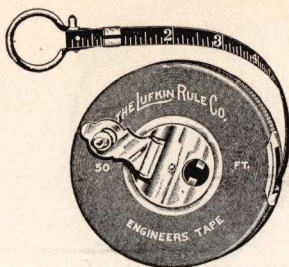
**A Foresters 20-Foot Steel Tape in Metal Case**

This item is also standard equipment of United States Foresters. The ¾ inch wide steel line has “Nubian” Finish. It is marked on front side 20 feet in standard feet, 10ths and 100ths of feet, “Instantaneous” Readings; on the back in diameter equivalents of circumferences in consecutive diameter inches and 10ths of inches up to 76 diameter inches. Blank space first end. Line is fitted with a formed metal hook for catching bark of trees. Put up in metal case, heavily nickel plated, with knurled edge affording firm grip. Hole in edge of case into which point of hook fits for protection in carrying. Folding flush handle is opened by pressing pin on opposite side.

No. 120TP	Length, 20 feet (76 dia. inches)	Wt. each, 6 ozs.	Each \$4.50
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NOTE: For Biltmore or Forest Cruiser Sticks, see page 117.





## Engineers Pattern (Standard Weight) Steel Tapes

(Tape Thickness—Approximately .012 Inch)

**No. 233 Series. 1/4 Inch Wide.**

This is a sturdy tape line and case, well designed for engineering, surveying, etc. The line is of the old standard engineering tape width and thickness, 1/4 inch by approximately .012 inch, most flexible yet durable. With its leather case it is the most compact of engineers tapes. For carrying many prefer case to reel or frame.

Line is of highest grade tape steel, distinctly marked, with zero point at extreme end of tape. It is readily removed from case and is supplied with two detachable finger rings of improved pattern. It has "Instantaneous" Readings and "Nubian" Finish. Measurements guaranteed accurate.

The case is narrow, of brown, selected, genuine leather, closely hand-stitched, with substantial plated steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated.

### Marked One Side Only

Feet, inches and 8ths.....	No.	<b>233</b>	<b>235</b>	<b>236</b>
Feet, 10ths and 100ths ft.....	No.	<b>233D</b>	<b>235D</b>	<b>236D</b>
Length, feet.....		50	75	100
Weight each, ozs.....		17	22	25
Price, each.....		\$8.80	\$12.50	\$15.60

### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

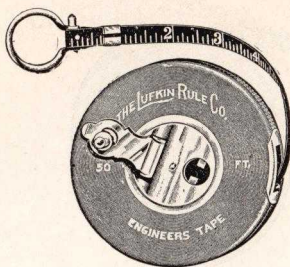
No.....	<b>233ME</b>	<b>234ME</b>	<b>235 1/2 ME</b>	<b>236ME</b>
Length, meters.....	15	20	25	30
Length, feet.....	50	66	82	100
Price, each.....	\$9.80	\$12.60	\$14.90	\$17.60

NOTES: Other Assemblies—For same line on metal frame see pages 24 and 25, on "Wolverine" reel see page 21.

Stainless Steel—Above tapes can be supplied in stainless steel at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.





## Engineers Pattern (Extra Weight) Steel Tapes

(Tape Thickness—Approximately .015 Inch)

**No. 233-X Series.  $\frac{1}{4}$  Inch Wide.**

An engineers sturdy tape and leather case, same as No. 233 series shown page 19, except line 25% heavier, giving extra durability. This tape also is very suitable for engineering and survey work, and convenient to carry.

Line of highest grade tape steel, distinctly marked, with zero point at extreme end of tape. It is readily removed from case and is supplied with two detachable finger rings of improved pattern. It has "Instantaneous" Readings and "Nubian" Finish. Measurements guaranteed accurate.

The case is narrow and of brown, selected, genuine leather, closely hand-stitched and with substantial plated steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated.

### Marked One Side Only

Feet, inches and 8ths. . . . .	No.	<b>233-X</b>	<b>235-X</b>	<b>236-X</b>
Feet, 10ths and 100ths ft. . . . .	No.	<b>233D-X</b>	<b>235D-X</b>	<b>236D-X</b>
Length, feet. . . . .		50	75	100
Weight each, ozs. . . . .		20	25	31
Price, each. . . . .		\$8.80	\$12.50	\$15.60

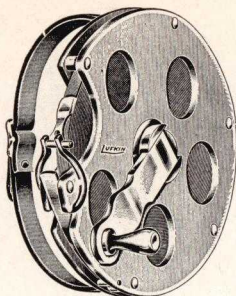
### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

No. . . . .	<b>233ME-X</b>	<b>236ME-X</b>
Length, meters. . . . .	15	30
Length, feet. . . . .	50	100
Price, each. . . . .	\$9.80	\$17.60

NOTES: Other Assemblies—For same line on "Wolverine" reel see page 22, on frame see page 26.

Standard Weight—For standard weight engineers tapes in leather case, see page 19.



## “Wolverine” (Standard Weight) Steel Tapes

(Tape Thickness—Approximately .012 Inch)

**No. 1373 Series. 1/4 Inch Wide.**

An engineers pattern line on metal disk reel, especially popular with city engineers, and in construction and mine work. This line is of the old standard engineering tape width and thickness, 1/4 inch by approximately .012 inch, most flexible yet durable. One side of reel is perforated to aid in clearing tape of dirt accumulation and in drying it out.

Line of highest grade tape steel, clearly marked, and has “Instantaneous” Readings and “Nubian” Finish. It is engineers style, i.e., measures from extreme end of tape, is removable from reel, and is supplied with two detachable finger rings of improved pattern. Measurements guaranteed accurate.

Disk reel substantially made of light weight rust-proof metal, with lock handle. This one-piece winding handle, turned over, engages cut-away in reel and locks the line at any point. This handle with its large knob and greater length gives good grip and extra leverage. Reel has adjustable leather strap handle, affording firm hold. Tape ring locks under a spring on reel, guarding against first end breakage.

### Marked One Side Only

Feet, inches and 8ths . . . . .No.	<b>1373</b>	<b>1376</b>	<b>1377</b>	<b>1378</b>	<b>1379</b>
Feet, 10ths and 100ths ft. No.	<b>1373D</b>	<b>1376D</b>	<b>1377D</b>	<b>1378D</b>	<b>1379D</b>
Length, feet. . . . .	50	100	150	200	300
Weight each, ozs. . . . .	18	30	42	48	64
Price, each. . . . .	\$11.70	\$20.00	\$29.60	\$40.00	\$59.10

### Marked Metric and English

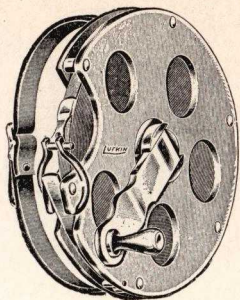
One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.			
No. . . . .	<b>1373ME</b>	<b>1376ME</b>	<b>1377ME</b>
Length, meters. . . . .	15	30	50
Length, feet. . . . .	50	100	164
Price, each. . . . .	\$12.80	\$22.20	\$34.80

NOTES: Other Assemblies—For same line in leather case see page 19, on metal frame see pages 24 and 25.

Stainless Steel—Above tapes can be supplied with stainless steel line, at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.





## **“Wolverine” (Extra Weight) Steel Tapes**

(Tape Thickness—Approximately .015 Inch)

**No. 1373-X Series.  $\frac{1}{4}$  Inch Wide.**

This is an engineers tape on metal reel and is exactly same as the “Wolverine” shown page 21, except having line 25% heavier, hence still more sturdy.

Line of highest grade tape steel, distinctly marked, with zero point at extreme end of tape. It is readily removed from reel and is supplied with two detachable finger rings of improved pattern. It has “Instantaneous” Readings and “Nubian” Finish. Measurements guaranteed accurate.

Substantial disk reel of light weight, rust-proof metal with one side perforated to aid in clearing the tape of dirt, etc., and in drying it out. Has lock handle, a one-piece winding handle which, turned over, engages cut-away in reel and locks the line at any point. This handle with its large knob and greater length gives good grip and extra leverage. Reel has adjustable leather strap handle, affording firm hold. Tape ring locks under a spring on reel, guarding against first end breakage.

### **Marked One Side Only**

Feet, inches and 8ths . . . . . No.	<b>1373-X</b>	<b>1376-X</b>
Feet, 10ths and 100ths ft. . . . . No.	<b>1373D-X</b>	<b>1376D-X</b>
Length, feet . . . . .	50	100
Weight each, ozs. . . . .	23	37
Price, each . . . . .	\$11.70	\$20.00

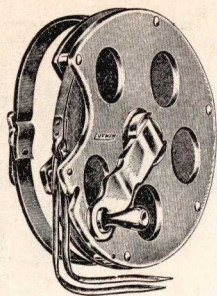
### **Marked Metric and English**

One Side First Decimeter in MM., Balance in CM.,  
Other Side Feet, Inches and 8ths.

No. . . . .	<b>1373ME-X</b>	<b>1376ME-X</b>
Length, meters . . . . .	15	30
Length, feet . . . . .	50	100
Price, each . . . . .	\$12.80	\$22.20

NOTES: Other Assemblies—For same line in leather case see page 20, on metal frame see page 26.

Standard Weight—For standard weight “Wolverine” Tapes see page 21.



## Engineers Heavy Steel Tapes on "Wolverine" Reel

(Tape Thickness—Approximately .020 Inch)

No. 1376-XX Series.  $\frac{1}{4}$  Inch Wide.

A sturdy line of chain tape weight but fully subdivided throughout; preferred for work requiring both accuracy and extra durability.

Line is over 50% heavier than engineers "standard weight" tapes but graduated throughout in the same manner. It is of high grade tape steel, clearly marked, and has "Instantaneous" Readings and "Nubian" Finish. It has blank space at each end. Heavy metal clip or eye is riveted to each end, and a pair of rawhide thongs is furnished with each tape. Line is readily detachable from reel. Measurements guaranteed accurate.

Substantial disk reel of rust-proof metal, with extra large drum, long winding handle and large finger knob, all combining to give good grip, leverage and speed in winding. Has lock handle, a one-piece winding handle which, turned over, engages cut-away in reel and locks the line at any point. Reel has adjustable leather strap handle, affording firm hold, and is perforated on one side to aid in clearing the tape of dirt accumulation and in drying it out.

### Marked One Side Only

#### Tapes Complete with Reel

Feet, 10ths and 100ths ft.	No. 1376D-XX	100 ft.	Wt. each $3\frac{3}{4}$ lbs.	Each \$22.20
Feet, inches and 8ths	No. 1376-XX	100 ft.	Wt. each $3\frac{3}{4}$ lbs.	Each 22.20

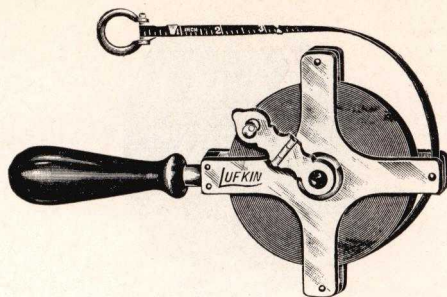
#### Tape Lines Only, without Reel, with Thongs

Feet, 10ths and 100ths ft.	No. 01376D-XX	100 ft.	Wt. each 2 lbs.	Each \$13.60
Feet, inches and 8ths	No. 01376-XX	100 ft.	Wt. each 2 lbs.	Each 13.60

NOTES: Other Assemblies—For same line on lock handle frame see "Western" Tape, page 27, on hardwood reel see page 28.

Lighter Weight Tapes—For "Wolverine" Tapes in "standard weight" and "extra weight," see pages 21 and 22.





## Engineers Pattern (Standard Weight) Frame Steel Tapes with Folding Handle

(Tape Thickness—Approximately .012 Inch)

**No. 273 Series.  $\frac{1}{4}$  Inch Wide.**

Metal frame is sturdy, handles well in hard service and best takes care of dirt accumulation. This line is most flexible yet durable, being of the old standard engineering tape width and thickness,  $\frac{1}{4}$  inch by approximately .012 inch.

Line of highest grade tape steel, distinctly marked and with zero point at extreme end of tape. It is readily removed from frame and is supplied with two detachable finger rings of improved pattern. It has "Instantaneous" Readings and "Nubian" Finish. Measurements guaranteed accurate.

Substantial, 4-arm metal frame with removable, polished hardwood handle and with folding winding handle. Frame and mountings are heavily nickel plated.

### Marked One Side Only

Feet, inches and 8ths. .... No.	<b>273</b>	<b>276</b>	<b>277</b>	<b>278</b>
Feet, 10ths and 100ths ft. .... No.	<b>273D</b>	<b>276D</b>	<b>277D</b>	<b>278D</b>
Length, feet. ....	50	100	150	200
Weight each, ozs. ....	19	31	36	42
Price, each. ....	\$8.80	\$15.00	\$22.70	\$29.30

### Marked Metric and English

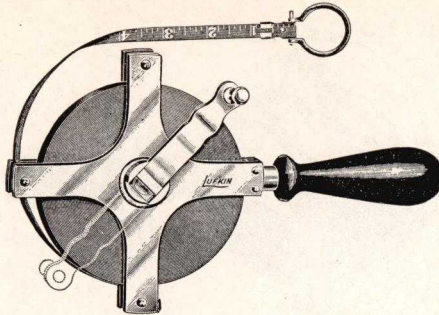
One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

No. ....	<b>273ME</b>	<b>276ME</b>	<b>277ME</b>
Length, meters. ....	15	30	50
Length, feet. ....	50	100	164
Price, each. ....	\$9.90	\$17.20	\$27.80

NOTES: Other Assemblies—For same line in leather case see page 19, on "Wolverine" reel see page 21, on lock handle frame see page 25.

Stainless Steel—Above tapes can be supplied with stainless steel line at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.



## Engineers Pattern (Standard Weight) Frame Steel Tapes with Lock Handle

(Tape Thickness—Approximately .012 Inch)

**No. 1273 Series.  $\frac{1}{4}$  Inch Wide.**

A sturdy yet most flexible engineers tape line with the popular lock handle frame. Frame tapes are extensively used where dirt and other obstructions are encountered. This tape is  $\frac{1}{4}$  inch wide by approximately .012 inch thick, the standard engineering tape dimensions.

Line of highest grade tape steel, clearly marked and with zero point at extreme end of tape. It is readily removed from frame and is supplied with two detachable finger rings of improved pattern. It has "Instantaneous" Readings and "Nubian" Finish. Measurements guaranteed accurate.

Substantial, 4-arm, metal frame of lock handle pattern, i.e., with one-piece winding handle which, turned over, engages frame arms and locks the line at any point. Frame has a removable, polished hardwood handle of ample size to afford firm hold and the long winding handle gives good leverage. Frame and mountings are heavily nickel plated.

### Marked One Side Only

Feet, inches and 8ths.....	No.	<b>1273</b>	<b>1276</b>	<b>1277</b>	<b>1278</b>
Feet, 10ths and 100ths ft.....	No.	<b>1273D</b>	<b>1276D</b>	<b>1277D</b>	<b>1278D</b>
Length, feet.....		50	100	150	200
Weight each, ozs.....		19	31	36	42
Price, each.....		\$8.80	\$15.00	\$22.70	\$29.30

### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

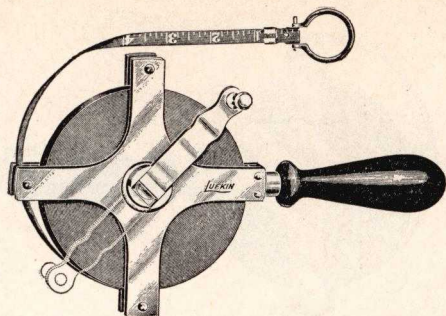
No.....	<b>1273ME</b>	<b>1276ME</b>	<b>1277ME</b>
Length, meters.....	15	30	50
Length, feet.....	50	100	164
Price, each.....	\$9.90	\$17.20	\$27.80

NOTES: Other Assemblies—For same line in leather case see page 19, on "Wolverine" reel see page 21, on folding handle frame see page 24.

Stainless Steel—Above tapes can be supplied with stainless steel line at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.





## Engineers Pattern (Extra Weight) Frame Steel Tapes with Lock Handle

(Tape Thickness—Approximately .015 Inch)

**No. 1273-X Series. 1/4 Inch Wide.**

An engineers sturdy tape line, same as No. 1273 series shown page 25, except line 25% heavier, giving extra durability.

Line of highest grade tape steel, distinctly marked, and with zero point at extreme end of tape. Easily removed from frame and supplied with two detachable finger rings of improved pattern. It has "Instantaneous" Readings and "Nubian" Finish. Measurements guaranteed accurate.

Four-arm, substantial, metal frame, with lock handle, i.e., one-piece winding handle which, turned over, engages frame arms and locks line at any point. Frame has removable, polished hardwood handle of ample length, and long winding handle, these combining to give firm hold and good leverage. Frame and its mountings are heavily nickel plated.

### Marked One Side Only

Feet, inches and 8ths.....	No.	<b>1273-X</b>	<b>1276-X</b>
Feet, 10ths and 100ths ft.....	No.	<b>1273D-X</b>	<b>1276D-X</b>
Length, feet.....		50	100
Weight each, ozs.....		29	46
Price, each.....		\$8.80	\$15.00

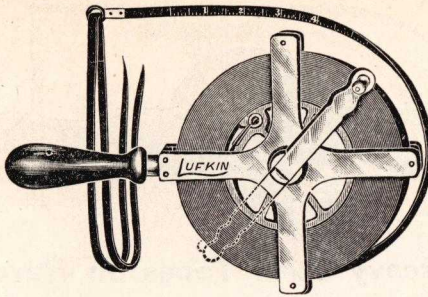
### Marked Metric and English

One Side First Decimeter in MM., Balance in CM.,  
Other Side Feet, Inches and 8ths.

No.....	<b>1273ME-X</b>	<b>1276ME-X</b>
Length, meters.....	15	30
Length, feet.....	50	100
Price, each.....	\$9.90	\$17.20

NOTES: Other Assemblies—For same line in leather case see page 20, on "Wolverine" reel see page 22.

Standard Weight—For corresponding "standard weight" frame tape see page 25.



## "Western" Engineers Heavy Steel Tapes on Lock Handle Frame

(Tape Thickness—Approximately .020 Inch)

**No. 1276-XX Series.  $\frac{1}{4}$  Inch Wide.**

Line over 50% heavier than engineers "standard weight" tapes. It is of same weight as chain tapes but fully subdivided throughout. With lock handle frame, a rugged and very popular assembly, best aid in drying out the line and clearing it of dirt accumulation. The "Western" is a heavy duty tape, convenient to handle and accurate.

One-quarter inch tape with "Instantaneous" Readings and "Nubian" Finish. Of high grade tape steel, clearly marked. Line easily removed from frame and each end has blank space and riveted-on heavy metal clip or eye for holding rawhide thong. A pair of such thongs is supplied with each tape.

Substantial, 4-arm, metal frame with removable, polished hardwood handle. It has lock handle which, turned over, engages arms of frame and so locks the line at any point. Large finger knob, long winding handle and large drum give good grip, leverage and speed in winding. Frame and its mountings are heavily nickel plated.

### Marked One Side Only

#### Tapes Complete with Frame

Feet, 10ths and 100ths ft. .... No.	<b>1276D-XX</b>	<b>1277D-XX</b>	<b>1278D-XX</b>
Feet, inches and 8ths. .... No.	<b>1276-XX</b>	<b>1277-XX</b>	<b>1278-XX</b>
Length, feet. ....	100	150	200
Weight each, lbs. ....	$3\frac{1}{2}$	$4\frac{3}{4}$	6
Price, each. ....	\$18.50	\$28.00	\$36.30

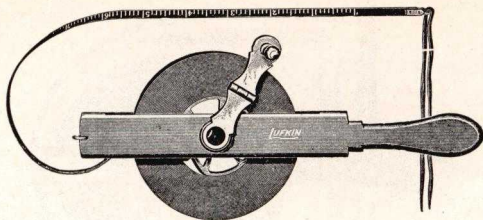
#### Tape Lines Only, without Frame, with Thongs

Feet, 10ths and 100ths ft. .... No.	<b>01276D-XX</b>	<b>01277D-XX</b>	<b>01278D-XX</b>
Feet, inches and 8ths. .... No.	<b>01276-XX</b>	<b>01277-XX</b>	<b>01278-XX</b>
Length, feet. ....	100	150	200
Weight each, lbs. ....	2	3	4
Price, each. ....	\$13.60	\$20.00	\$26.40

NOTES: Other Assemblies—For same 100 ft. line on "Wolverine" reel see page 23, on hardwood reel see page 28.

Lighter Weight Tapes—For engineers "standard weight" and "extra weight" tapes on lock handle frames see pages 25 and 26.





## Engineers Heavy Steel Tapes on Hardwood Reel

(Tape Thickness—Approximately .020 Inch)

**No. 1576-XX Series.  $\frac{1}{4}$  Inch Wide.**

A combination engineering and surveying tape of chain tape pattern and weight but in engineers graduation. Line and reel are same as our popular No. 5100 Chain Tape shown page 45, except tape is fully subdivided.

This line is over 50% heavier than engineers "standard weight" tapes. It is of high grade tape steel, clearly marked and with "Instantaneous" Readings and "Nubian" Finish. Each end has blank space and a riveted-on metal clip or eye for holding rawhide thong. Two such thongs are supplied with each tape. Line is easily detached from reel. Measurements guaranteed accurate.

Well finished hardwood reel, with long folding winding handle and large drum, reeling up the line easily and rapidly. Mountings nickel plated.

### Marked One Side Only

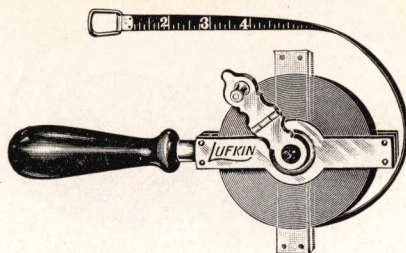
#### Tapes Complete with Reel

Feet, 10ths and 100ths ft.	No. <b>1576D-XX</b>	100 ft.	Wt. each $2\frac{3}{4}$ lbs.	Each \$16.70
Feet, inches and 8ths	No. <b>1576-XX</b>	100 ft.	Wt. each $2\frac{3}{4}$ lbs.	Each 16.70

#### Tape Lines Only, without Reel, with Thongs

Feet, 10ths and 100ths ft.	No. <b>01576D-XX</b>	100 ft.	Wt. each 2 lbs.	Each \$13.60
Feet, inches and 8ths	No. <b>01576-XX</b>	100 ft.	Wt. each 2 lbs.	Each 13.60

NOTES: Other Assemblies—For same line on "Wolverine" reel see page 23, on lock handle frame see page 27.



## Frame Steel Tapes with Folding Handle

### No. 283 Series. $\frac{3}{8}$ Inch Wide.

These are steel tapes for general measuring, of same type and weight as the popular "Challenge" but on metal frame. Frame tapes require a minimum of care as they do not readily clog with dirt and can be reeled up and put directly into oil.

Line of highest grade tape steel, distinctly marked, and with "Nubian" Finish and "Instantaneous" Readings, aids to accurate and quick reading. It has attached ring. Metal frame is sturdy and with its mountings is heavily nickel plated. It has folding winding handle. Polished hardwood handle is of size affording firm hold and is removable. Measurements guaranteed accurate.

#### Marked One Side Only

Feet, inches and 8ths..... No.	<b>283</b>	<b>285</b>	<b>286</b>	<b>287</b>	<b>288</b>
Feet, 10ths and 100ths ft..... No.	<b>283D</b>	<b>285D</b>	<b>286D</b>	<b>287D</b>	<b>288D</b>
Length, feet.....	50	75	100	150	200
Weight each, ozs.....	18	23	27	35	41
Price, each.....	\$7.60	\$10.40	\$13.00	\$21.10	\$26.10

#### Marked Metric and English

One Side First Decimeter in MM., Balance in CM., Other Side Feet, Inches and 8ths.

No.....	<b>283ME</b>	<b>285<math>\frac{1}{2}</math>ME</b>	<b>286ME</b>	<b>287ME</b>
Length, meters.....	15	25	30	50
Length, feet.....	50	82	100	164
Price, each.....	\$8.70	\$13.20	\$15.20	\$26.00

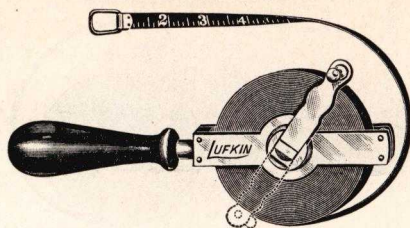
**All above tapes have 2-arm frame except 150 ft., 200 ft., and 50 meter, which have 4-arm frame.**

NOTES: Gagers Tapes—For above tapes with plumb bob see pages 37 and 39.

Stainless Steel—Above tapes can be supplied with stainless steel line at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.





## Lock Handle Frame Steel Tapes

### No. 1283 Series. $\frac{3}{8}$ Inch Wide.

Steel tapes for general measuring, of same type and weight as the popular "Challenge," but on metal frame with lock handle. Tapes with frame can be immersed in oil and are extensively used where dirt and other obstructions are encountered.

Line of highest grade tape steel, clearly marked, with "Nubian" Finish and "Instantaneous" Readings. Ring attached. Substantial 2-arm metal frame. The lock handle is a long one-piece winding handle which, turned over, engages frame arms and locks the line at any point. It also gives extra leverage. Polished hardwood handle affords firm hold and is removable. Frame and its mountings heavily nickel plated. Measurements guaranteed accurate.

#### Marked One Side Only

Feet, inches and 8ths.....	No.	<b>1283</b>	<b>1286</b>
Feet, 10ths and 100ths ft.....	No.	<b>1283D</b>	<b>1286D</b>
Length, feet.....		50	100
Weight each, ozs.....		20	32
Price, each.....		\$7.60	\$13.00

#### Marked Metric and English

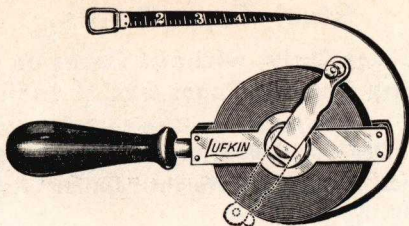
One Side First Decimeter in MM., Balance in CM.,  
Other Side Feet, Inches and 8ths.

No.....	<b>1283ME</b>	<b>1285<math>\frac{1}{2}</math>ME</b>	<b>1286ME</b>
Length, meters.....	15	25	30
Length, feet.....	50	82	100
Price, each.....	\$8.70	\$13.20	\$15.20

NOTES: Gaging Tapes—For above tapes with plumb bob see pages 38 and 39.

Stainless Steel Lines—Supplied on any above tapes at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.



## Lock Handle Frame Steel Tapes

### No. 1293 Series. 1/2 Inch Wide.

Sturdy steel tapes for general measuring, on metal frame with lock handle. Tapes with frame can be immersed in oil and are popular for use where dirt and dampness are found.

Line of highest grade tape steel, clearly marked, with "Nubian" Finish and "Instantaneous" Readings. Ring attached. Substantial 2-arm metal frame. The lock handle is a long one-piece winding handle which, turned over, engages frame arms and locks the line at any point. It also gives extra leverage. Polished hardwood handle affords firm hold, and is removable. Frame and its mountings heavily nickel plated. Measurements guaranteed accurate.

#### Marked One Side Only

Feet, inches and 8ths.....	No.	<b>1293</b>	<b>1296</b>
Feet, 10ths and 100ths ft.....	No.	<b>1293D</b>	<b>1296D</b>
Length, feet.....		50	100
Weight each, ozs.....		23	36
Price, each.....		\$8.80	\$15.00

#### Marked Metric and English

One Side First Decimeter in MM., Balance in CM.,  
Other Side Feet, Inches and 8ths.

No.....	<b>1293ME</b>	<b>1295 1/2 ME</b>	<b>1296ME</b>
Length, meters.....	15	25	30
Length, feet.....	50	82	100
Price, each.....	\$9.90	\$15.50	\$17.20

NOTES: Gaging Tapes—For above tapes with plumb bob see pages 34 and 36.

Stainless Steel Lines—Supplied on any above tapes at an extra price.

Metric Only—Above tapes so marked, prices same as feet and inches.



## Steel Tape Refills

(Tape Lines Only, without Cases or Reels.)

Covering Catalog Pages 5 to 31 Inclusive.

**Specify as "Refills" and by Prefixing Zero to Stock Number of Complete Tape. Example: No. 0263, or 0263D, or 0263ME "Challenge" Tape Refill.**

### $\frac{1}{4}$ Inch Wide, Light Weight "Junior" Refills

For "Reliable Jr." and "Challenge Jr."

Length, feet.....	25	33	50
Length, meters.....	10	15	15
Marked one side.....	Each \$3.60	\$4.00	\$4.50
Marked both sides.....	Each .....	5.10	6.00

### $\frac{1}{4}$ by .012 Inch Engineers "Standard Weight" Refills. (With detachable rings)

For Series 233, 1373, 273 and 1273, also D and ME.

Length, feet.....	50	66	75	82	100	150	164	200	300
Length, meters.....	15	20	25	30	30	50	50	50	50
Marked one side.....	Each \$6.80	\$10.20	\$12.70	\$18.60	\$24.50	\$37.20			
Marked both sides.....	Each 8.40	\$10.70	\$13.80	16.10	\$26.00				

### $\frac{1}{4}$ by .015 Inch Engineers "Extra Weight" Refills. (With detachable rings)

For Series 233-X, 1373-X and 1273-X, also D and ME.

Length, feet.....	50	75	100
Length, meters.....	15	30	30
Marked one side.....	Each \$6.80	\$10.20	\$12.70
Marked both sides.....	Each 8.40	.....	16.10

$\frac{1}{4}$  by .020 Inch Engineers "Heavy" Refills or Lines Only  
are Listed on pages 23, 27 and 28 with corresponding tapes complete.

### $\frac{3}{8}$ Inch Wide Steel Tape Refills

For Series 200 "Reliable," 260 "Challenge," 240 "Rival," 283 and 1283 Frame Tapes, also D and ME.

Length, feet.....	15	25	33	50	66	75	82	100	150	164	200
Length, meters.....	5	7½	10	15	20	22	25	30	50	50	50
Marked one side.....	Each \$3.60	\$3.90	\$4.50	\$5.70	\$6.00	\$7.80	\$13.50	\$18.00			
Marked both sides.....	Each \$3.60	4.40	4.80	6.00	7.60	8.30	\$9.00	10.80	\$20.00		

### $\frac{1}{2}$ Inch Wide Steel Tape Refills

For Series 300 "Reliable," 360 "Challenge," 1293 Frame Tapes, also D and ME.

Length, feet.....	15	25	33	50	66	75	82	100	150	164
Length, meters.....	5	7½	10	15	20	22	25	30	50	50
Marked one side.....	Each \$4.50	\$4.80	\$5.70	\$7.20	\$8.30	\$10.50	\$16.50			
Marked both sides.....	Each \$4.50	5.30	5.90	7.20	9.00	10.50	\$11.40	13.50	\$23.10	

### $\frac{3}{8}$ Inch Wide Stainless Steel Tape Refills

For Series S-260, also D and ME, and same stainless tapes of other series.

Length, feet.....	25	50	75	82	100
Length, meters.....	7½	15	25	25	30
Marked one side.....	Each \$6.10	\$9.50	\$13.50		\$17.80
Marked both sides.....	Each 6.90	11.00	.....	\$17.20	20.80

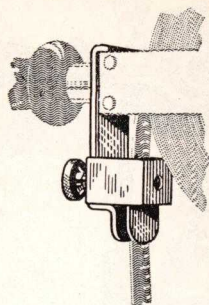
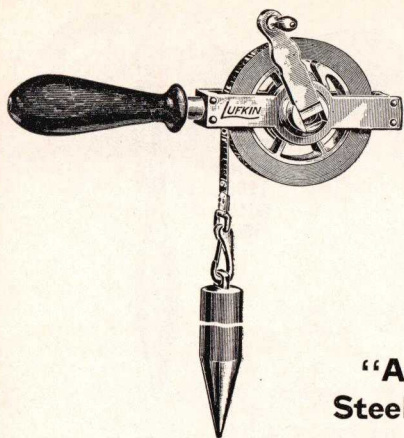
### $\frac{1}{2}$ Inch Wide Stainless Steel Tape Refills

For Series S-360, also D and ME, and same stainless tapes of other series.

Length, feet.....	25	50	75	82	100
Length, meters.....	7½	15	25	25	30
Marked one side.....	Each \$7.30	\$11.10	\$16.10		\$20.70
Marked both sides.....	Each 8.00	12.60	.....	\$20.30	23.60

NOTE: Millimeters Throughout—For this special metric graduation on any above  $\frac{3}{8}$  and  $\frac{1}{2}$  inch Tape Refills: Price 10c per meter additional to price of regular graduation.





Tape Wiper

## "Atlas" Oil Gaging Heavy Steel Tapes with Plumb Bob

### $\frac{1}{2}$ Inch Wide. Sturdiest and Best of All Gaging Tapes.

The "Atlas" is a line 50% heavier than standard weight Gaging Tapes, and with a rugged lock handle frame; line and frame both specially designed for tank gaging. Line has swivel snap and is equipped with No. 590 Brass Plumb Bob, both included in measurement. Bob detachable. Line of highest grade, clearly marked and with large figures, also with "Instantaneous" Readings and "Nubian" Finish, aids to accurate and quick reading.

The metal frame is case-hardened and built to withstand hard use. It has lock handle, a one-piece winding handle which, turned over, engages frame arms and locks line at any point, handy when sounding for bottom of tank. This long handle with large finger knob and the oversize drum shell give good grip, leverage and speed in winding. Removable, polished hardwood handle is of ample size to afford firm hold.

Solid brass Plumb Bob No. 590 weighs 20 ozs., so will penetrate heavy oils, etc. It is round, with tapered point, diameter one inch, length  $6\frac{3}{4}$  inches.

*To get the most complete, most practical and durable gaging outfit, specify "Atlas with 599 Wiper."*

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### Tapes Complete with Frame and Bob Marked Feet, Inches and 8ths, One Side Only

Number	Length	Width and Type	Wt. Each	Each
<b>1290S with 590</b> "Atlas" Gaging Tape	25 ft.	$\frac{1}{2}$ inch, heavy	2 $\frac{3}{4}$ lbs.	\$11.50
<b>1291S with 590</b> "Atlas" Gaging Tape	33 ft.	$\frac{1}{2}$ inch, heavy	3 lbs.	12.30
<b>1293S with 590</b> "Atlas" Gaging Tape	50 ft.	$\frac{1}{2}$ inch, heavy	3 $\frac{1}{4}$ lbs.	14.10
<b>1294S with 590</b> "Atlas" Gaging Tape	66 ft.	$\frac{1}{2}$ inch, heavy	3 $\frac{1}{2}$ lbs.	16.00

No. 599 Wiper. (With 6 extra pads) . . . With Any Above Tapes' . . . Extra each \$1.10  
Specify "With 599 Wiper." Wiper is shown above and fully described page 43.

### Lines Only for Above "Atlas" Gaging Tapes Fitted for but without Bob, and without Frame

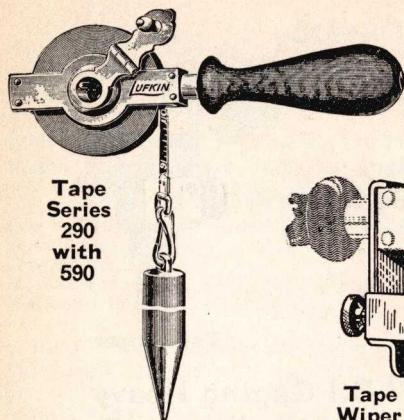
25 ft. "Atlas" Gaging Line Only.	No. <b>01290S for 590</b> . . . . .	Each \$4.90
33 ft. "Atlas" Gaging Line Only.	No. <b>01291S for 590</b> . . . . .	Each 5.60
50 ft. "Atlas" Gaging Line Only.	No. <b>01293S for 590</b> . . . . .	Each 6.50
66 ft. "Atlas" Gaging Line Only.	No. <b>01294S for 590</b> . . . . .	Each 8.60

NOTES: Metric and English—For "Atlas" Tapes so marked see page 40.

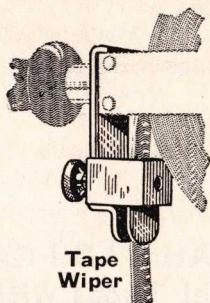
Metric Only—"Atlas" Tapes so marked, prices same as feet and inches.

Other Plumb Bobs—Any of our plumb bobs shown page 42 can also be supplied with "Atlas" Tapes. Price basis: Difference in price of bobs only.

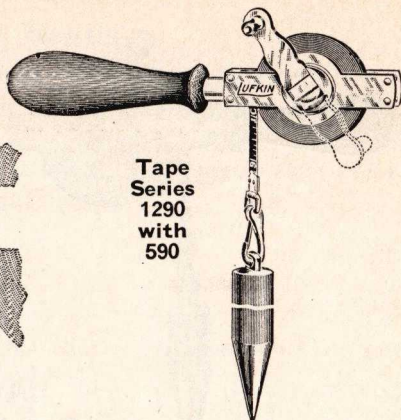




Tape  
Series  
290  
with  
590



Tape  
Wiper



Tape  
Series  
1290  
with  
590

## Oil Gaging Steel Tapes with Plumb Bob $\frac{1}{2}$ Inch Wide.

Frame Tapes with standard weight, highest grade steel line. Line has swivel snap and Plumb Bob No. **590**, both included in measurement. Bob detachable. Line clearly marked and has "Instantaneous" Readings and "Nubian" Finish.

Frame of No. **290** series tapes has folding winding handle. Frame of No. **1290** series has lock handle, i.e., one-piece winding handle which, turned over, engages frame arms and locks the line at any point, handy when sounding for bottom of tank. Both types are sturdy metal frames, with removable, polished hardwood handle affording firm hold. Frames and their mountings heavily nickel plated.

Solid brass Plumb Bob No. **590** weighs 20 ozs., so will penetrate heavy oils, etc. It is round, with tapered point, diameter one inch, length  $6\frac{3}{4}$  inches.

In Ordering Use Stock Numbers Complete, Just as Underscored

### Tapes Complete with Frame and Bob Marked Feet, Inches and 8ths, One Side Only

Number	Length	Width	Frame	Wt. Each	Each
<b>290 with 590</b> Gaging Tape	25 ft.	$\frac{1}{2}$ inch	Folding Handle	$2\frac{3}{8}$ lbs.	\$ 8.70
<b>291 with 590</b> Gaging Tape	33 ft.	$\frac{1}{2}$ inch	Folding Handle	$2\frac{1}{2}$ lbs.	9.90
<b>293 with 590</b> Gaging Tape	50 ft.	$\frac{1}{2}$ inch	Folding Handle	$2\frac{3}{4}$ lbs.	11.60
<b>1290 with 590</b> Gaging Tape	25 ft.	$\frac{1}{2}$ inch	Lock Handle	$2\frac{3}{8}$ lbs.	\$ 8.70
<b>1291 with 590</b> Gaging Tape	33 ft.	$\frac{1}{2}$ inch	Lock Handle	$2\frac{1}{2}$ lbs.	9.90
<b>1293 with 590</b> Gaging Tape	50 ft.	$\frac{1}{2}$ inch	Lock Handle	$2\frac{3}{4}$ lbs.	11.60

No. **599** Wiper. (With 6 extra pads) . . . With Any Above Tapes. . . Extra each \$1.10  
Specify "With **599** Wiper." Wiper is shown above and fully described page 43.

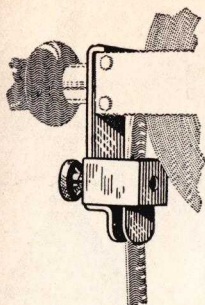
### Lines Only for Above Gaging Tapes Fitted for but without Bob, and without Frame

25 ft. Gaging Line Only.	No. <b>0290</b> for <b>590</b> or <b>01290</b> for <b>590</b> . . . . .	Each \$4.70
33 ft. Gaging Line Only.	No. <b>0291</b> for <b>590</b> or <b>01291</b> for <b>590</b> . . . . .	Each 5.00
50 ft. Gaging Line Only.	No. <b>0293</b> for <b>590</b> or <b>01293</b> for <b>590</b> . . . . .	Each 5.90

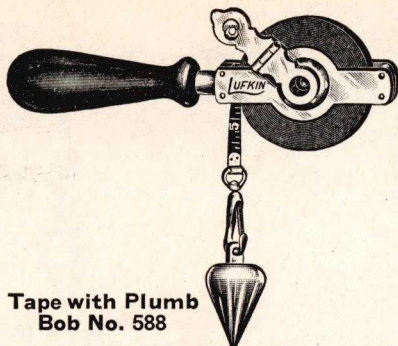
(Lines in **290** and **1290** series tapes are identical)

NOTES: Metric and English—For above tapes so marked see page 40.  
Metric Only—Above tapes so marked, prices same as feet and inches.  
Stainless Steel Lines—Supplied on any above tapes at an extra price.  
Lighter Weight Bobs—For above tapes so equipped see pages 35 and 36.  
"Atlas" Extra Sturdy  $\frac{1}{2}$  Inch Gaging Tapes—See page 33.





Tape  
Wiper



Tape with Plumb  
Bob No. 588



Plumb Bob  
No. 589

## Oil Gaging Steel Tapes with Plumb Bob

### 1/2 Inch Wide.

A standard weight, highest grade steel tape on frame with folding wind-ing handle. Line has swivel snap and plumb bob, both included in measure-ment. Bob detachable. Line clearly marked and has "Instantaneous" Readings and "Nubian" Finish. Metal frame is sturdy and with its mount-ings is heavily nickel plated. Removable, polished hardwood handle affords firm hold.

Solid brass, cone shaped plumb bob No. 588 weighs 6 ozs., greatest diameter 1 1/4 inch, length 2 3/8 inch. Enameled iron, 3-legged bob 589 weighs 14 ozs., has base diameter 2 3/8 inch, and is interchangeable with 588, being same length.

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### Tapes Complete with Frame and Bob Marked Feet, Inches and 8ths, One Side Only

Number	Length	Width	Wt. Each	Each
<b>290 with 588</b> Gaging Tape	25 ft.	1/2 inch	1 1/2 lbs.	\$ 8.20
<b>291 with 588</b> Gaging Tape	33 ft.	1/2 inch	1 5/8 lbs.	9.40
<b>293 with 588</b> Gaging Tape	50 ft.	1/2 inch	1 7/8 lbs.	11.10
<b>290 with 589</b> Gaging Tape	25 ft.	1/2 inch	2 lbs.	\$ 7.80
<b>291 with 589</b> Gaging Tape	33 ft.	1/2 inch	2 1/8 lbs.	9.00
<b>293 with 589</b> Gaging Tape	50 ft.	1/2 inch	2 3/8 lbs.	10.70

No. 599 Wiper. (With 6 extra pads) . . . With Any Above Tapes. . . Extra each \$1.10  
Specify "With 599 Wiper." Wiper is shown above and fully described page 43.

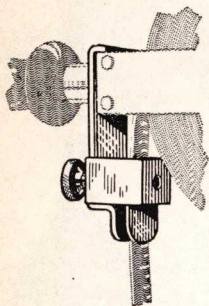
### Lines Only for Above Gaging Tapes Fitted for but without Bob, and without Frame

25 ft. Gaging Line Only. No. <b>0290</b> for <b>588</b> (or <b>589</b> ) . . . . .	Each \$4.70
33 ft. Gaging Line Only. No. <b>0291</b> for <b>588</b> (or <b>589</b> ) . . . . .	Each 5.00
50 ft. Gaging Line Only. No. <b>0293</b> for <b>588</b> (or <b>589</b> ) . . . . .	Each 5.90

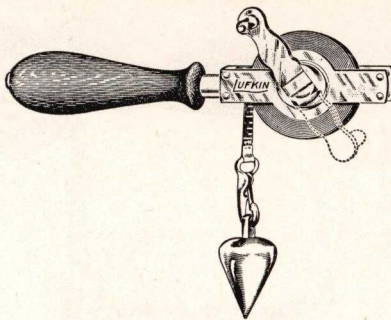
(Bobs 588 and 589 being same length take identical tape line)

NOTES: Metric and English—For above tapes so marked see page 40.  
Metric Only—Above tapes so marked, prices same as feet and inches.  
Stainless Steel Lines—Supplied on any above tapes at an extra price.  
Lock Handle Frame—For above tapes on such frames see page 36.  
20 Ounce Brass Bob—For above tapes so equipped see page 34.  
"Atlas" Extra Sturdy 1/2 Inch Gaging Tapes—See page 33.





Tape  
Wiper



Tape with  
Plumb Bob No. 588



Plumb Bob  
No. 589

## Oil Gaging Steel Tapes with Plumb Bob $\frac{1}{2}$ Inch Wide.

A standard weight, highest grade steel tape on lock handle frame. Line has swivel snap and plumb bob, both included in measurement. Bob detachable. Line clearly marked and has "Instantaneous" Readings and "Nubian" Finish. Substantial metal frame with one-piece lock handle with large finger knob giving very good grip for winding. This handle, turned over, engages frame arms, and locks the line at any point, very handy when sounding for bottom of tank. Frame and its mountings are heavily nickel plated. Removable, polished hardwood handle affords firm hold.

Solid brass, cone shaped plumb bob No. 588 weighs 6 ozs., greatest diameter  $1\frac{1}{4}$  inch, length  $2\frac{3}{8}$  inch. Enameled iron, 3-legged bob 589 weighs 14 ozs., has base diameter  $2\frac{3}{8}$  inch and is interchangeable with 588, being same length.

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### Tapes Complete with Frame and Bob Marked Feet, Inches and 8ths, One Side Only

Number	Length	Width	Wt. Each	Each
<b>1290 with 588</b> Gaging Tape	25 ft.	$\frac{1}{2}$ inch	$1\frac{1}{2}$ lbs.	\$ 8.20
<b>1291 with 588</b> Gaging Tape	33 ft.	$\frac{1}{2}$ inch	$1\frac{5}{8}$ lbs.	9.40
<b>1293 with 588</b> Gaging Tape	50 ft.	$\frac{1}{2}$ inch	$1\frac{7}{8}$ lbs.	11.10
<b>1290 with 589</b> Gaging Tape	25 ft.	$\frac{1}{2}$ inch	2 lbs.	\$ 7.80
<b>1291 with 589</b> Gaging Tape	33 ft.	$\frac{1}{2}$ inch	$2\frac{1}{8}$ lbs.	9.00
<b>1293 with 589</b> Gaging Tape	50 ft.	$\frac{1}{2}$ inch	$2\frac{3}{8}$ lbs.	10.70

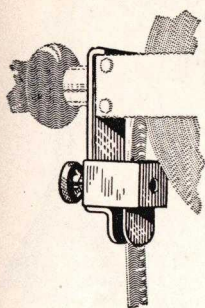
No. 599 Wiper. (With 6 extra pads) . . . With Any Above Tapes . . . Extra each \$1.10  
Specify "With 599 Wiper." Wiper is shown above and fully described page 43.

### Lines Only for Above Gaging Tapes Fitted for but without Bob, and without Frame

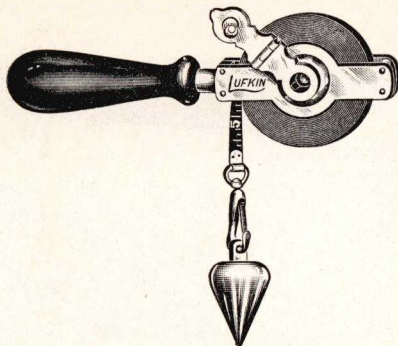
25 ft. Gaging Line Only. No. <b>01290 for 588</b> (or 589) . . . . .	Each \$4.70
33 ft. Gaging Line Only. No. <b>01291 for 588</b> (or 589) . . . . .	Each 5.00
50 ft. Gaging Line Only. No. <b>01293 for 588</b> (or 589) . . . . .	Each 5.90

(Bobs 588 and 589 being same length take identical tape line)

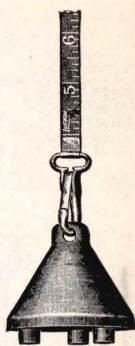
NOTES: Metric and English—For above tapes so marked see page 40.  
Metric Only—Above tapes so marked, prices same as feet and inches.  
Stainless Steel Lines—Supplied on any above tapes at an extra price.  
20 Oz., Brass Bob—For above tapes so equipped see page 34.  
"Atlas" Extra Sturdy  $\frac{1}{2}$  Inch Gaging Tapes—See page 33.



Tape  
Wiper



Tape with  
Plumb Bob No. 588



Plumb Bob  
No. 589

## Oil Gaging Steel Tapes with Plumb Bob

### $\frac{3}{8}$ Inch Wide.

A standard weight, highest grade steel tape on frame with folding winding handle. Line has swivel snap and plumb bob, both included in measurement. Bob detachable. Line clearly marked and has "Instantaneous" Readings and "Nubian" Finish. Metal frame is sturdy and with its mountings is heavily nickel plated. Removable, polished hardwood handle affords firm hold.

Solid brass, cone shaped plumb bob No. 588 weighs 6 ozs., greatest diameter  $1\frac{1}{4}$  inch, length  $2\frac{3}{8}$  inch. Enamelled iron, 3-legged bob 589 weighs 14 ozs., has base diameter  $2\frac{3}{8}$  inch, and is interchangeable with 588, being same length.

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### Tapes Complete with Frame and Bob

#### Marked Feet, Inches and 8ths, One Side Only

Number	Length	Width	Wt. Each	Each
<b>280 with 588</b> Gaging Tape	25 ft.	$\frac{3}{8}$ inch	$1\frac{3}{8}$ lbs.	\$7.30
<b>281 with 588</b> Gaging Tape	33 ft.	$\frac{3}{8}$ inch	$1\frac{1}{2}$ lbs.	8.20
<b>283 with 588</b> Gaging Tape	50 ft.	$\frac{3}{8}$ inch	$1\frac{5}{8}$ lbs.	9.90
<b>280 with 589</b> Gaging Tape	25 ft.	$\frac{3}{8}$ inch	$1\frac{7}{8}$ lbs.	\$6.90
<b>281 with 589</b> Gaging Tape	33 ft.	$\frac{3}{8}$ inch	2 lbs.	7.80
<b>283 with 589</b> Gaging Tape	50 ft.	$\frac{3}{8}$ inch	$2\frac{1}{8}$ lbs.	9.50

**No. 599 Wiper.** (With 6 extra pads) . . . With Any Above Tapes . . . Extra each \$1.10  
Specify "With 599 Wiper." Wiper is shown above and fully described page 43.

### Lines Only for Above Gaging Tapes

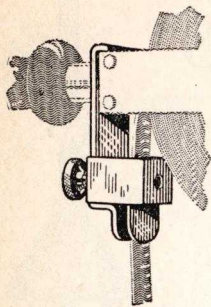
#### Fitted for but without Bob, and without Frame

25 ft. Gaging Line Only. No. <b>0280 for 588</b> (or 589) . . . . .	Each \$3.80
33 ft. Gaging Line Only. No. <b>0281 for 588</b> (or 589) . . . . .	Each 4.10
50 ft. Gaging Line Only. No. <b>0283 for 588</b> (or 589) . . . . .	Each 4.70

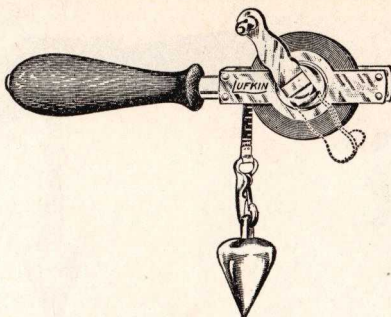
(Bobs 588 and 589 being same length take identical tape line)

NOTES: Metric and English—For above tapes so marked see page 40.  
Metric Only—Above tapes so marked, prices same as feet and inches.  
Stainless Steel Lines—Supplied on any above tapes at an extra price.  
Lock Handle Frame—For above tapes on such frames see page 38.

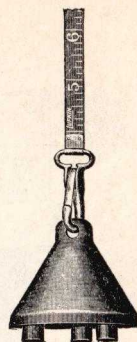




Tape  
Wiper



Tape with  
Plumb Bob No. 588



Plumb Bob  
No. 589

## Oil Gaging Steel Tapes with Plumb Bob $\frac{3}{8}$ Inch Wide.

A standard weight, highest grade steel tape on lock handle frame. Line has swivel snap and plumb bob, both included in measurement. Bob detachable. Line clearly marked and has "Instantaneous" Readings and "Nubian" Finish. Substantial metal frame with one-piece lock handle with large finger knob giving very good grip for winding. This handle, turned over, engages frame arms, and locks the line at any point, very handy when sounding for bottom of tank. Frame and its mountings are heavily nickel plated. Removable, polished hardwood handle affords firm hold.

Solid brass, cone shaped plumb bob No. **588** weighs 6 ozs., greatest diameter  $1\frac{1}{4}$  inch, length  $2\frac{3}{8}$  inch. Enameled iron, 3-legged bob **589** weighs 14 ozs., has base diameter  $2\frac{3}{8}$  inch and is interchangeable with **588**, being same length.

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### Tapes Complete with Frame and Bob Marked Feet, Inches and 8ths, One Side Only

Number		Length	Width	Wt. Each	Each
<b>1280 with 588</b>	Gaging Tape	25 ft.	$\frac{3}{8}$ inch	$1\frac{3}{8}$ lbs.	\$7.30
<b>1281 with 588</b>	Gaging Tape	33 ft.	$\frac{3}{8}$ inch	$1\frac{1}{2}$ lbs.	8.20
<b>1283 with 588</b>	Gaging Tape	50 ft.	$\frac{3}{8}$ inch	$1\frac{5}{8}$ lbs.	9.90
<b>1280 with 589</b>	Gaging Tape	25 ft.	$\frac{3}{8}$ inch	$1\frac{7}{8}$ lbs.	\$6.90
<b>1281 with 589</b>	Gaging Tape	33 ft.	$\frac{3}{8}$ inch	2 lbs.	7.80
<b>1283 with 589</b>	Gaging Tape	50 ft.	$\frac{3}{8}$ inch	$2\frac{1}{8}$ lbs.	9.50

No. **599** Wiper. (With 6 extra pads). . . . . With Any Above Tapes. . . . . Extra each \$1.10  
Specify "With **599** Wiper." Wiper is shown above and fully described page 43.

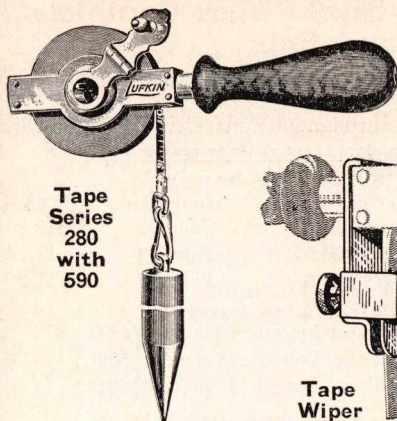
### Lines Only for Above Gaging Tapes Fitted for but without Bob, and without Frame

25 ft. Gaging Line Only.	No. <b>01280</b> for <b>588</b> (or <b>589</b> )	Each	\$3.80
33 ft. Gaging Line Only.	No. <b>01281</b> for <b>588</b> (or <b>589</b> )	Each	4.10
50 ft. Gaging Line Only.	No. <b>01283</b> for <b>588</b> (or <b>589</b> )	Each	4.70

(Bobs **588** and **589** being same length take identical tape line)

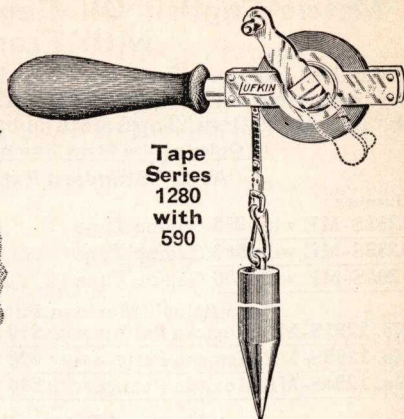
NOTES: Metric and English—For above tapes so marked see page 40.  
Metric Only—Above tapes so marked, prices same as feet and inches.  
Stainless Steel Lines—Supplied on any above tapes at an extra price.





Tape  
Series  
280  
with  
590

Tape  
Wiper



Tape  
Series  
1280  
with  
590

## Oil Gaging Steel Tapes with Plumb Bob $\frac{3}{8}$ Inch Wide.

Frame Tapes with standard weight, highest grade steel line. Line has swivel snap and Plumb Bob No. 590, both included in measurement. Bob detachable. Line clearly marked and has "Instantaneous" Readings and "Nubian" Finish.

Frame of No. 280 series tapes has folding winding handle. Frame of No. 1280 series has lock handle, i.e., one-piece winding handle which, turned over, engages frame arms and locks the line at any point, handy when sounding for bottom of tank. Both types are sturdy metal frames, with removable, polished hardwood handle affording firm hold. Frames and their mountings heavily nickel plated.

Solid brass Plumb Bob No. 590 weighs 20 ozs., so will penetrate heavy oils, etc. It is round, with tapered point, diameter one inch, length  $6\frac{3}{4}$  inches.

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### Tapes Complete With Frame and Bob Marked Feet, Inches and 8ths, One Side Only

Number		Length	Width	Frame	Wt. Each	Each
<u>280 with 590</u>	Gaging Tape	25 ft.	$\frac{3}{8}$ inch	Folding Handle	$2\frac{1}{4}$ lbs.	\$7.80
<u>281 with 590</u>	Gaging Tape	33 ft.	$\frac{3}{8}$ inch	Folding Handle	$2\frac{3}{8}$ lbs.	8.70
<u>283 with 590</u>	Gaging Tape	50 ft.	$\frac{3}{8}$ inch	Folding Handle	$2\frac{1}{2}$ lbs.	10.40
<u>1280 with 590</u>	Gaging Tape	25 ft.	$\frac{3}{8}$ inch	Lock Handle	$2\frac{1}{4}$ lbs.	\$7.80
<u>1281 with 590</u>	Gaging Tape	33 ft.	$\frac{3}{8}$ inch	Lock Handle	$2\frac{3}{8}$ lbs.	8.70
<u>1283 with 590</u>	Gaging Tape	50 ft.	$\frac{3}{8}$ inch	Lock Handle	$2\frac{1}{2}$ lbs.	10.40

No. 599 Wiper. (With 6 extra pads) . . . With Any Above Tapes. . . Extra each \$1.10  
Specify "With 599 Wiper." Wiper is shown above and fully described page 43.

### Lines Only for Above Gaging Tapes Fitted for but without Bob, and without Frame

25 ft. Gaging Line Only.	No. <u>0280 for 590</u> or <u>01280 for 590</u> . . . . .	Each	\$3.80
33 ft. Gaging Line Only.	No. <u>0281 for 590</u> or <u>01281 for 590</u> . . . . .	Each	4.10
50 ft. Gaging Line Only.	No. <u>0283 for 590</u> or <u>01283 for 590</u> . . . . .	Each	4.70

(Lines in 280 and 1280 series tapes are identical)

NOTES: Metric and English—For above tapes so marked see page 40.  
Metric Only—Above tapes so marked, prices same as feet and inches.  
Stainless Steel Lines—Supplied on any above tapes at an extra price.  
Lighter Weight Bobs—For above tapes so equipped see pages 37 and 38.



## Metric-English Oil Gaging Steel Tapes Complete with Frame and Bob

"Standard Pattern" Tapes are marked one side first decimeter in mm., balance in cm.; other side feet, inches and 8ths.

★ "Mexican Pattern" Tapes are in millimeters throughout, and feet, inches and 16ths.

**In Ordering Use Stock Numbers Complete, Just as Underscored**

### "Atlas" Standard Pattern ( $\frac{1}{2}$ inch wide, heavy)

Number		Length	Description	Each
<b>1291S-ME</b> with <b>590</b>	Gaging Tape	10 meters (33 ft.)	Page 33	\$13.00
<b>1293S-ME</b> with <b>590</b>	Gaging Tape	15 meters (50 ft.)	Page 33	15.20
<b>1294S-ME</b> with <b>590</b>	Gaging Tape	20 meters (66 ft.)	Page 33	17.20

### "Atlas" Mexican Pattern ( $\frac{1}{2}$ inch wide, heavy)

No. <b>1291S-ME</b>	Mexican Pattern with <b>590</b>	Gaging Tape. Length: 10 meters (33 ft.)	\$13.90
No. <b>1293S-ME</b>	Mexican Pattern with <b>590</b>	Gaging Tape. Length: 15 meters (50 ft.)	16.70
No. <b>1294S-ME</b>	Mexican Pattern with <b>590</b>	Gaging Tape. Length: 20 meters (66 ft.)	19.50

### "Standard Pattern" Gaging Tapes Complete

Number		Length	Width	Description	Each
<b>291ME</b> with <b>590</b>	Gaging Tape	10 meters (33 ft.)	$\frac{1}{2}$ inch	Page 34	\$10.60
<b>293ME</b> with <b>590</b>	Gaging Tape	15 meters (50 ft.)	$\frac{1}{2}$ inch	Page 34	12.70
<b>1291ME</b> with <b>590</b>	Gaging Tape	10 meters (33 ft.)	$\frac{1}{2}$ inch	Page 34	10.60
<b>1293ME</b> with <b>590</b>	Gaging Tape	15 meters (50 ft.)	$\frac{1}{2}$ inch	Page 34	12.70
<b>291ME</b> with <b>588</b>	Gaging Tape	10 meters (33 ft.)	$\frac{1}{2}$ inch	Page 35	\$10.10
<b>293ME</b> with <b>588</b>	Gaging Tape	15 meters (50 ft.)	$\frac{1}{2}$ inch	Page 35	12.20
<b>291ME</b> with <b>589</b>	Gaging Tape	10 meters (33 ft.)	$\frac{1}{2}$ inch	Page 35	9.70
<b>293ME</b> with <b>589</b>	Gaging Tape	15 meters (50 ft.)	$\frac{1}{2}$ inch	Page 35	11.80
<b>1291ME</b> with <b>588</b>	Gaging Tape	10 meters (33 ft.)	$\frac{1}{2}$ inch	Page 36	\$10.10
<b>1293ME</b> with <b>588</b>	Gaging Tape	15 meters (50 ft.)	$\frac{1}{2}$ inch	Page 36	12.20
<b>1291ME</b> with <b>589</b>	Gaging Tape	10 meters (33 ft.)	$\frac{1}{2}$ inch	Page 36	9.70
<b>1293ME</b> with <b>589</b>	Gaging Tape	15 meters (50 ft.)	$\frac{1}{2}$ inch	Page 36	11.80
<b>281ME</b> with <b>588</b>	Gaging Tape	10 meters (33 ft.)	$\frac{3}{8}$ inch	Page 37	\$ 9.00
<b>283ME</b> with <b>588</b>	Gaging Tape	15 meters (50 ft.)	$\frac{3}{8}$ inch	Page 37	11.00
<b>281ME</b> with <b>589</b>	Gaging Tape	10 meters (33 ft.)	$\frac{3}{8}$ inch	Page 37	8.60
<b>283ME</b> with <b>589</b>	Gaging Tape	15 meters (50 ft.)	$\frac{3}{8}$ inch	Page 37	10.60
<b>1281ME</b> with <b>588</b>	Gaging Tape	10 meters (33 ft.)	$\frac{3}{8}$ inch	Page 38	\$ 9.00
<b>1283ME</b> with <b>588</b>	Gaging Tape	15 meters (50 ft.)	$\frac{3}{8}$ inch	Page 38	11.00
<b>1281ME</b> with <b>589</b>	Gaging Tape	10 meters (33 ft.)	$\frac{3}{8}$ inch	Page 38	8.60
<b>1283ME</b> with <b>589</b>	Gaging Tape	15 meters (50 ft.)	$\frac{3}{8}$ inch	Page 38	10.60
<b>281ME</b> with <b>590</b>	Gaging Tape	10 meters (33 ft.)	$\frac{3}{8}$ inch	Page 39	\$ 9.50
<b>283ME</b> with <b>590</b>	Gaging Tape	15 meters (50 ft.)	$\frac{3}{8}$ inch	Page 39	11.50
<b>1281ME</b> with <b>590</b>	Gaging Tape	10 meters (33 ft.)	$\frac{3}{8}$ inch	Page 39	9.50
<b>1283ME</b> with <b>590</b>	Gaging Tape	15 meters (50 ft.)	$\frac{3}{8}$ inch	Page 39	11.50

No. **599 Wiper**. (With 6 extra pads) . . . With Any Above Tapes . . . Extra each \$1.10  
Specify "With **599 Wiper**." For full description see page 43.

★ **Mexican Pattern:** While only "Atlas" Tapes are so listed above, all other tapes above will, when specified, be supplied in "Mexican Pattern" i.e., in mm. and 16ths throughout, at extra each . . . 10 meter \$1.00, 15 meter \$1.50.

NOTES: Lines Only For All Above Gaging Tapes—See page 41.

Stainless Steel Lines—Supplied on any above standard weight  $\frac{3}{8}$  and  $\frac{1}{2}$  inch tapes at an extra price.

Metric Only—See footnotes on pages 33 to 39.



## Lines Only for Metric-English Oil Gaging Steel Tapes

### Fitted for but without Bob, and without Frame.

For Tapes Listed on Page 40

"Standard Pattern" Tapes are marked one side first decimeter in mm., balance in cm.; other side feet, inches and 8ths.

★ "Mexican Pattern" Tapes are in millimeters throughout, and feet, inches and 16ths.

In Ordering Use Stock Numbers Complete, Just as Underscored

#### Lines Only for "Atlas" Standard Pattern

Length	Number	Width	Each
10 meter (33 ft.) Gaging Line Only	<u>01291S-ME for 590</u>	½ inch, heavy	\$ 6.70
15 meter (50 ft.) Gaging Line Only	<u>01293S-ME for 590</u>	½ inch, heavy	8.00
20 meter (66 ft.) Gaging Line Only	<u>01294S-ME for 590</u>	½ inch, heavy	10.60

#### Lines Only for "Atlas" Mexican Pattern

10 meter (33 ft.) Gaging Line Only	<u>01291S-ME Mexican Pattern for 590</u>	\$ 7.70
15 meter (50 ft.) Gaging Line Only	<u>01293S-ME Mexican Pattern for 590</u>	9.50
20 meter (66 ft.) Gaging Line Only	<u>01294S-ME Mexican Pattern for 590</u>	12.60

#### Lines Only for "Standard Pattern" Gaging Tapes

Length	Number	Width	Each
10 meter (33 ft.) Gaging Line Only	<u>0291ME for 590</u>	½ inch	\$6.10
15 meter (50 ft.) Gaging Line Only	<u>0293ME for 590</u>	½ inch	7.40

For Tape Lines Only for **1291ME-590** and **1293ME-590**, use stock numbers and prices same as above. Such lines are identical with those above.

10 meter (33 ft.) Gaging Line Only	<u>0291ME for 588 (or 589)</u>	½ inch	\$6.10
15 meter (50 ft.) Gaging Line Only	<u>0293ME for 588 (or 589)</u>	½ inch	7.40

For Tape Lines Only for **1291ME-588** and **1293ME-588 (or 589)**, use stock numbers and prices same as above. Such lines are identical with above.

10 meter (33 ft.) Gaging Line Only	<u>0281ME for 588 (or 589)</u>	⅜ inch	\$5.00
15 meter (50 ft.) Gaging Line Only	<u>0283ME for 588 (or 589)</u>	⅜ inch	6.20

For Tape Lines Only for **1281ME-588** and **1283ME-588 (or 589)**, use stock numbers and prices same as above. Such lines are identical with above.

10 meter (33 ft.) Gaging Line Only	<u>0281ME for 590</u>	⅜ inch	\$5.00
15 meter (50 ft.) Gaging Line Only	<u>0283ME for 590</u>	⅜ inch	6.20

For Tape Lines Only for **1281ME-590** and **1283ME-590**, use stock numbers and prices same as above. Such lines are identical with those above.

★ **Mexican Pattern:** While only "Atlas" Lines Only are so listed above, all other gaging lines above will, when so specified, be supplied in "Mexican Pattern," i.e., in mm. and 16ths throughout, at extra each . . . 10 meter \$1.00, 15 meter \$1.50.

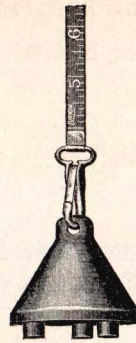
NOTES: Stainless Steel—Any above standard weight ⅜ and ½ inch lines supplied in stainless steel at an extra price.

Metric Only—See footnotes on pages 33 to 39.





No. 588



No. 589

No.  
590G

## Plumb Bobs for Steel Tapes

(For Oil Gaging Tapes with Bobs See Pages 33 to 40.)

These Plumb Bobs are extensively used for tank gaging. (Tapes used with them are cut to include bob in measurement, i.e., so zero falls at lower end of bob.)

No. 588 is a 6-ounce, solid brass bob, cone shaped; a weight suitable for the lighter oils, gasoline, etc.

No. 589 is a 14-ounce, enameled iron bob, 3-legged, and is interchangeable with No. 588, being same length.

No. 590 is a 20-ounce, solid brass bob, round, with tapered point, and will penetrate heavy oils, etc.

No. 590G is exactly same as No. 590 except graduated inches to 8ths, reading upward, i.e., zero falling at lower end of point.

Nos. 588A and 590A are brass bobs, identical with Nos. 588 and 590 except having removable tip (screw tip) made of "Ampco" metal. "Ampco" is similar to brass but harder.

No.		Wt. Each	Length	Diameter	Each
588	Plumb Bob	6 ozs.	2 $\frac{3}{8}$ inch	1 $\frac{1}{4}$ inch	\$2.30
589	Plumb Bob	14 ozs.	2 $\frac{3}{8}$ inch	2 $\frac{3}{8}$ inch	1.90
590	Plumb Bob	20 ozs.	6 $\frac{3}{4}$ inch	1 inch	2.80
590G	Plumb Bob	20 ozs.	6 $\frac{3}{4}$ inch	1 inch	3.70
588A	Plumb Bob	6 ozs.	2 $\frac{3}{8}$ inch	1 $\frac{1}{4}$ inch	2.80
590A	Plumb Bob	20 ozs.	6 $\frac{3}{4}$ inch	1 inch	3.30

## Outage Plumb Bob No. 587

Designed for determining tank outage rather than contents. Outage gaging is most common for ship tanks and related work.

Bob No. 587 is of solid brass,  $\frac{3}{4}$  inch square. It has inserted black strip in dull finish, holding and making oil line most readable. It is graduated to 16ths inch, with inches numbered from top to bottom, zero point falling at inside of top of eye. (Tapes used with this bob have zero falling at inside of outer end of snap; hence adding oil line measurement on bob to tape reading, gives total outage.)

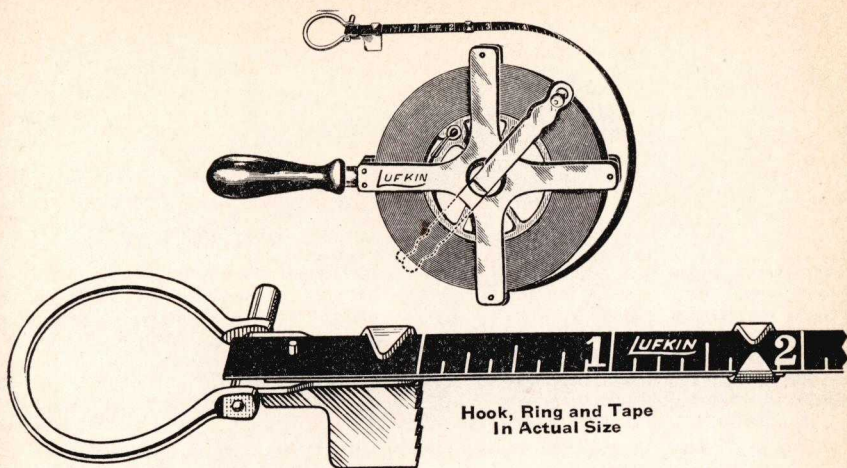
No.		Wt. Each	Length	Diameter	Each
587	Outage Plumb Bob	16 ozs.	7 inch	$\frac{3}{4}$ inch, square	\$4.40

NOTE: Tapes with Bob—Specify by adding bob number to tape number, as "1291S with 589," etc.



No. 587





Hook, Ring and Tape  
In Actual Size

## "Derrick" Steel Tape With Lock Handle Frame

Width:  $\frac{1}{4}$  Inch.

Approximate Thickness: .020 Inch.

A heavy duty Tape and Frame with sturdy hook and finger ring at first end of line, especially designed for measuring pipe or casing standing upright, as in a derrick. This Tape is suitable also for general measuring work.

The steel hook or block is securely riveted to the lip of the ring. It projects  $\frac{1}{2}$  inch from lower side of the tape and has ribbed face so holds well to the pipe. Zero falls at inside of hook. The swinging finger ring is  $1\frac{1}{8}$  inch in diameter, so affords firm hand hold. The man in the derrick can quickly bring this tape into position and, without sighting, set it down on the pipe so that accurate measurement is quickly obtained even in a high wind or from an unfavorable position. The tape line being but  $\frac{1}{4}$  inch wide reduces wind resistance. Flexible lip of the ring prevents sharp kinking of the line. The hook is handy in practically any kind of measuring. However, this hook and ring are detachable, allowing our standard engineers tape ring (No. 580 shown page 51) to be applied. Last end of tape has metal clip or eye and for it leather thong is supplied. Tape is detachable from frame.

This  $\frac{1}{4}$ -inch, high grade line, while of extra weight, like Chain Tapes, is fully subdivided throughout. It has etched graduations, "Instantaneous" Readings and "Nubian" Finish.

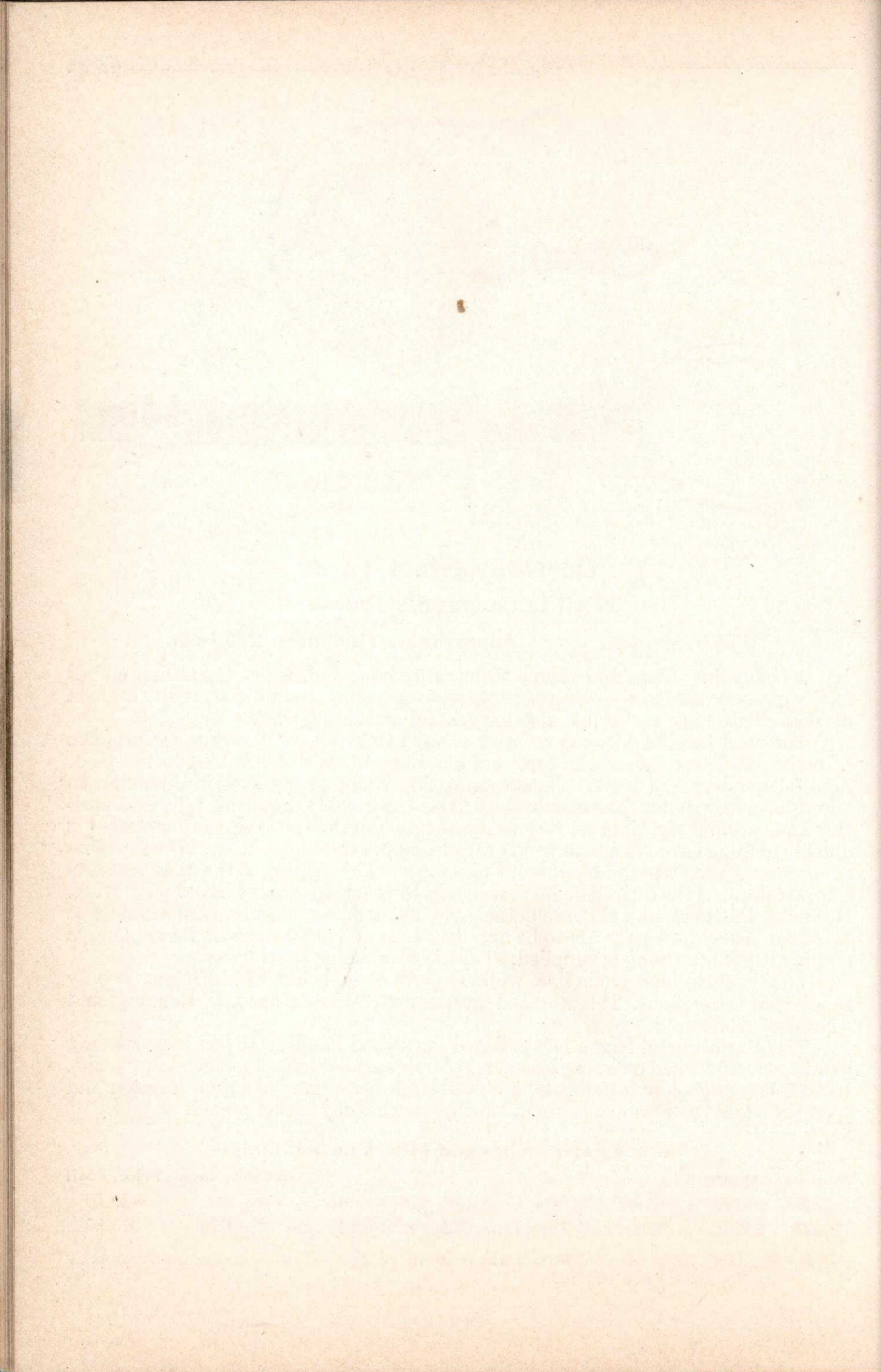
The 4-arm, metal frame has polished hardwood handle. It has lock winding handle, which, turned over, engages arms of frame and so locks the line at any point. Large finger knob, long winding handle, and large drum give good grip, leverage and speed in winding. Frame and its mountings are heavily nickel plated.

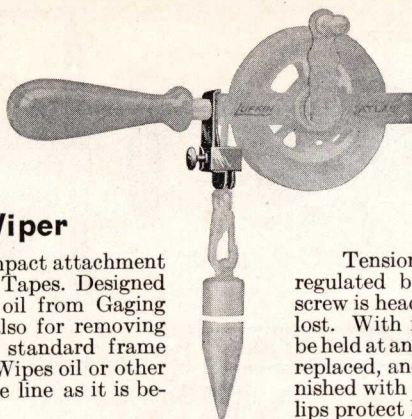
### Marked Feet, Inches and 8ths, One Side Only

Number	Length		Weight, Each	Price, Each
2276	100 ft.	"Derrick" Tape Complete with Frame	$3\frac{1}{2}$ lbs.	\$20.50
02276	100 ft.	"Derrick" Tape Line Only, without Frame	2 lbs.	\$15.60

NOTE: "Derrick" Tapes Marked Feet, 10ths & 100ths of Feet—Prices same as above; specify as No. 2276D and 02276D.







## Tape Wiper

A sturdy and compact attachment fitting ALL our Frame Tapes. Designed primarily for wiping oil from Gaging Tapes, it is suitable also for removing dirt, lint, etc., from standard frame tapes with end ring. Wipes oil or other accumulation from the line as it is being reeled in.

Tension of wiper pads is nicely regulated by thumb screw, which screw is headed so it cannot become lost. With it the tape line can also be held at any point. Pads are easily replaced, and six extra ones are furnished with each Wiper. Extension lips protect line from breakage.

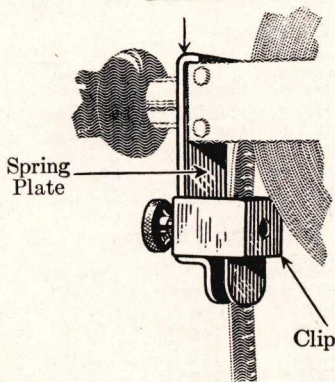
When wanted on tapes ordered specify "With 599 Wiper," and we ship assembled as shown above, and at price of Tape plus price of Wiper. Wipers are also sold separately, as they can be assembled in the field on tapes in use.

No. 599 Wiper. (With 6 extra pads) ..... Each \$1.10  
Pads only for No. 599 ..... Per doz. .30

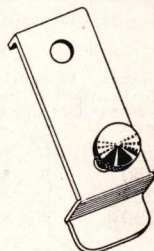
### Directions for Assembling Wiper to Tape

Wiper has three principal parts as illustrated below. Separate them. Place *Tape Wiper Clip* over tape line with its pad on winding drum side of line and with its lip extending downward toward first end of line. Pass *Tape Wiper Bracket* up through clip, from first end. Insert *Spring Plate* downward in clip between bracket and tape line, pad facing pad. Attach Wiper to Frame by screwing hardwood tape handle through Wiper into Frame.

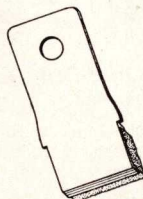
#### Bracket



Tape Wiper Clip



Tape Wiper Bracket



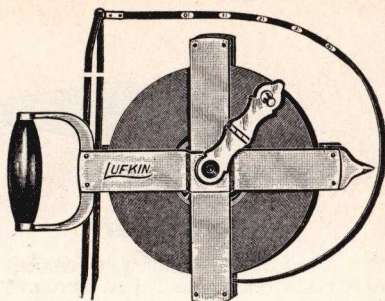
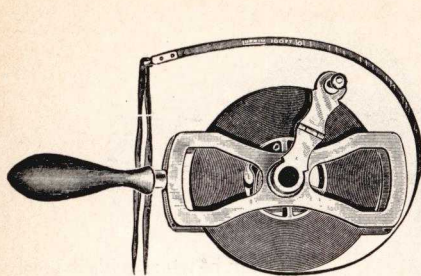
Spring Plate

## Tank Strapping Tapes

The American Petroleum Institute Measuring Code specifies, for tank strapping, a 100 foot steel tape,  $\frac{1}{4}$  inch wide, marked 10ths and 100ths of feet. Various steel tapes are used, but our Engineers Tapes in "D" graduation, shown pages 19 to 27, meet code specification and have required durability. Most popular of all for tank strapping is "Extra Weight" Tape No. 1276D-X, shown page 26.

NOTE: For Oil Gaging Tapes—See pages 33 to 40.





## **Hi-Way** Drag Tapes

### No. 9100 Series

**Width:  $\frac{5}{16}$  Inch. Approximate Thickness .025 Inch. Etched Markings.**

Extra Sturdy and Designed Especially for Highway, Railroad and Similar Work

A heavy Chain Tape of special tough steel and with extraordinary resistance to wear and tear. Has "Nubian" Finish. Prominent black lines and figures deeply cut into bright portions of the line which are in high relief, therefore markings most permanent, easy to read and to locate even by touch. Outwears all other Chain Tapes, and markings remain clear even after much dragging of the tape.

"Hi-Way" Tapes have  $\frac{1}{2}$  railroad gage mark at  $2' 4\frac{1}{4}"$  from zero. Heavy brass end clips. Pair of leather thongs with each tape. Line detachable from reel. Sturdy metal reel in dull nickel plated finish, with polished hardwood handle, large drum, and long, folding winding handle. Tapes over 100 feet long have 4-arm reel with "D" handle and spike end.

**Regular Markings One Side Only—Feet only every foot, with end feet in 100ths.**

#### Tapes Complete with Reel

★Blank Space Each End Reg. Markings	Measuring from Outer End of Clips Regular Markings	Extra Foot Before Zero in 100ths, Numbered Right to Left★★★	Length	Weight Each	Price Each
No. 9050	No. 9050A	No. 9050B	50 ft.	2 $\frac{1}{4}$ lbs.	\$11.80
No. 9100	No. 9100A	No. 9100B	100 ft.	3 $\frac{1}{4}$ lbs.	14.30
No. 9150	No. 9150A	No. 9150B	150 ft.	5 lbs.	20.40
No. 9200	No. 9200A	No. 9200B	200 ft.	6 $\frac{3}{4}$ lbs.	26.10
No. 9300	No. 9300A	No. 9300B	300 ft.	8 $\frac{3}{4}$ lbs.	37.30

#### Tape Lines Only, without Reel, with Thongs

★Blank Space Each End Reg. Markings	Measuring from Outer End of Clips Regular Markings	Extra Foot Before Zero in 100ths, Numbered Right to Left★★★	Length	Weight Each	Price Each
No. 09050	No. 09050A	No. 09050B	50 ft.	1 lb.	\$ 7.70
No. 09100	No. 09100A	No. 09100B	100 ft.	2 lbs.	10.20
No. 09150	No. 09150A	No. 09150B	150 ft.	3 lbs.	14.30
No. 09200	No. 09200A	No. 09200B	200 ft.	4 lbs.	18.00
No. 09300	No. 09300A	No. 09300B	300 ft.	6 lbs.	27.20

#### Reels Only

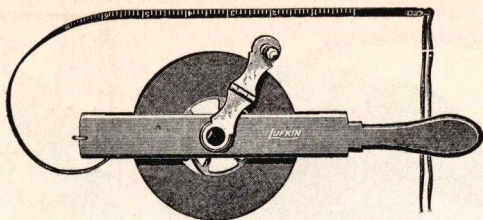
For 50 and 100-ft. Tapes.....Each \$4.10	For 200-ft. Tape.....Each \$ 8.20
For 150-ft. Tape.....Each 6.10	For 300-ft. Tape.....Each 10.20

★These Tapes with blank space and with "regular markings" as described above are furnished unless "A" or "B" is specified.

★★★"B" Tapes also have blank space both ends, and are marked feet only every foot.

NOTE: End Feet to Inches—"Hi-Way" Tapes so marked, no extra charge.





## "Pioneer" Chain Tapes No. 5100 Series

Width:  $\frac{1}{4}$  Inch. Approximate Thickness: .020 Inch. Etched Markings.

A sturdy steel tape affording a fine degree of accuracy. It has "Nubian" Finish, and black lines and figures cut into raised bright portions of the line, legible and permanent. Heavy brass end clips. Pair of leather thongs with each tape. Polished hardwood reel with long, folding winding handle and large drum. Mountings nickel plated. Line detachable from reel.

### Regular Markings, One Side Only

Tapes in feet —Feet only every foot, with end feet in 100ths. (See also ★★★)

Tapes in links —Links and poles, with end links in 10ths.

Tapes in meters—First and last decimeter in mm., balance of first and last meter in cm., balance of length in decimeters.

### Tapes Complete with Reel

★ No.	★★ No.	★★★ No.	Length	Each
5050	5050A	5050B	50 foot	\$ 9.30
5100	5100A	5100B	100 foot	11.10
5150	5150A	5150B	150 foot	14.80
5200	5200A	5200B	200 foot	17.40
5300	5300A	5300B	300 foot	26.40
5500	5500A	5500B	500 foot	40.70
5066	.....	.....	100 link	9.70
5132	.....	.....	200 link	14.80
5330	.....	.....	500 link	29.30
5082M	.....	.....	25 meter	10.80
5100M	.....	.....	30 meter	12.30
5164M	.....	.....	50 meter	18.50
5328M	.....	.....	100 meter	33.30

### Lines Only, without Reel, with Thongs

★ No.	★★ No.	★★★ No.	Length	Each
05050	05050A	05050B	50 foot	\$ 5.60
05100	05100A	05100B	100 foot	7.40
05150	05150A	05150B	150 foot	10.40
05200	05200A	05200B	200 foot	13.00
05300	05300A	05300B	300 foot	19.80
05500	05500A	05500B	500 foot	33.30
05066	.....	.....	100 link	6.00
05132	.....	.....	200 link	10.40
05330	.....	.....	500 link	22.60
05082M	.....	.....	25 meter	7.10
05100M	.....	.....	30 meter	8.60
05164M	.....	.....	50 meter	14.10
05328M	.....	.....	100 meter	25.90

★These have blank space each end. Furnished unless "A" or "B" is specified.

★★"A" indicates measuring from outer end of clip to outer end of clip.

★★★"B" indicates extra foot before zero, in 100ths, numbered right to left.

"B" Tapes also have blank space each end and are marked feet only every foot.

### Reels Only

For 50 and 100-ft., 100-link, 25 and 30-meter Tapes.....Each \$3.70

For 150 and 200-ft., 200-link, and 50-meter Tapes.....Each 4.50

For 300-ft., and 500-link Tapes.....Each 6.70

For 500-ft., and 100-meter Tapes.....Each 7.40

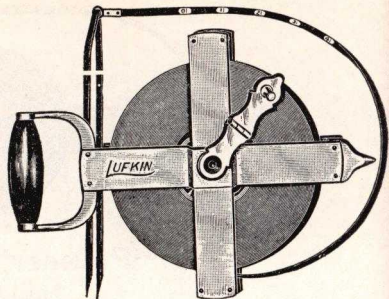
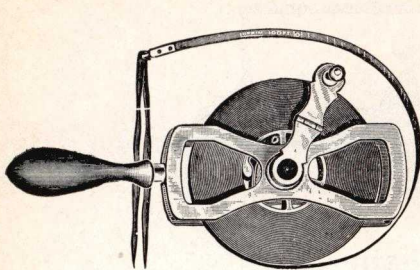
Shipping Weight: Average, for above tapes without reel,  $1\frac{1}{2}$  lbs. per 100 feet.

NOTES: Half Railroad Gage Mark—This mark,  $2' 4\frac{1}{4}"$  from zero, put on any above tapes, when specified, at no extra charge.

End Feet in Inches and 8ths—Above tapes so marked, no extra charge.

No. 5100 Fully Subdivided—This tape with feet subdivided to 100ths entire length is our No. 1576D-XX, shown page 28.





## "Michigan" Chain Tapes No. 3100 Series

**Width:**  $\frac{5}{16}$  Inch. **Approx. Thickness:** .015 Inch. **Markings on Babbitt Metal.**

The "Michigan" is especially popular in railroad and highway work. Line and reel stand up well in hard service. Line is of extra tough steel, white metal coated. Graduations and figures are deeply stamped into babbitt metal. Line is detachable from reel, has heavy brass end clips, and is furnished with a pair of leather thongs. Sturdy metal reel, in dull nickel plated finish, with polished hardwood handle and long, folding winding handle. Tapes over 100 feet long have 4-arm reel with "D" handle and spike end. Spike aids in holding reel when line is being withdrawn or rewound.

### Regular Markings, One Side Only

Tapes in feet — Feet only every foot, with end feet in 10ths. (See also ★★★)

Tapes in links — Links and poles, with end links in 10ths.

Tapes in meters — First and last meter in decimeters, balance in meters.

#### Tapes Complete with Reel

★ No.	★★ No.	★★★ No.	Length	Each
3050	3050A	3050B	50 foot	\$ 9.30
3100	3100A	3100B	100 foot	11.10
3150	3150A	3150B	150 foot	14.80
3200	3200A	3200B	200 foot	17.40
3300	3300A	3300B	300 foot	26.40
3500	3500A	3500B	500 foot	40.70
3066	.....	.....	100 link	9.70
3132	.....	.....	200 link	14.80
3082M	.....	.....	25 meter	10.80
3100M	.....	.....	30 meter	12.30
3164M	.....	.....	50 meter	18.50
3328M	.....	.....	100 meter	33.30

#### Lines Only, without Reel, with Thongs

★ No.	★★ No.	★★★ No.	Length	Each
03050	03050A	03050B	50 foot	\$ 5.60
03100	03100A	03100B	100 foot	7.40
03150	03150A	03150B	150 foot	10.40
03200	03200A	03200B	200 foot	13.00
03300	03300A	03300B	300 foot	19.80
03500	03500A	03500B	500 foot	33.30
03066	.....	.....	100 link	6.00
03132	.....	.....	200 link	10.40
03082M	.....	.....	25 meter	7.10
03100M	.....	.....	30 meter	8.60
03164M	.....	.....	50 meter	14.10
03328M	.....	.....	100 meter	25.90

★ These have blank space each end. Furnished unless "A" or "B" is specified.

★★ "A" indicates measuring from outer end of clip to outer end of clip.

★★★ "B" indicates extra foot before zero, in 10ths, numbered right to left.

"B" Tapes also have blank space each end and are marked feet only every foot.

#### Reels Only

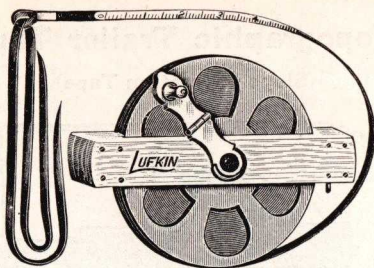
For 50 and 100 ft., 100-link, 25 and 30-meter Tapes.....	Each	\$3.70
For 150-ft., 200-link, and 50-meter Tapes.....	Each	4.50
For 200-ft., Tape.....	Each	6.50
For 300-ft., and 100-meter Tapes.....	Each	8.40
For 500-ft., Tape.....	Each	10.20

Shipping Weight: Average, for above tapes without reel, 2 lbs. per 100 feet.

NOTES: Half Railroad Gage Mark—This mark,  $2' 4\frac{1}{4}"$  from zero, put on any above tapes, when specified, at no extra charge.

End Feet in Inches—Above tapes so marked, no extra charge.





## "Canyon" Chain Tapes

### No. 4100 Series

Width:  $\frac{1}{8}$  Inch. Approximate Thickness: .025 Inch. Etched Markings.

This is a sturdy steel tape and, being extra narrow, reduces wind resistance and handles well among obstructions and on rough ground. It has "Nubian" Finish. Markings and figures are black and cut into raised bright portions of the tape. A pair of leather thongs is furnished with each tape. Perforated disk reel of sheet steel, in dull nickel plated finish, and mounted in hardwood frame, with leather strap handle. Long, folding winding handle. Line detachable from reel and has blank space both ends.

### Regular Markings, One Side Only

Tapes in feet —Feet only every foot, with end feet in 100ths.

Tapes in links —Links and poles, with end links in 10ths. ★

Tapes in meters—First and last decimeter in mm., balance of first and last meter in cm., balance of length in decimeters.

### Tapes Complete with Reel

Number	Length	Each
<b>4100</b>	100 foot	\$18.50
<b>4150</b>	150 foot	21.50
<b>4200</b>	200 foot	24.10
<b>4300</b>	300 foot	32.70
<b>4500</b>	500 foot	46.30
<b>4066</b>	100 link	17.10
<b>4132</b>	200 link	21.50
<b>4082M</b>	25 meter	18.20
<b>4100M</b>	30 meter	19.70
<b>4164M</b>	50 meter	25.20
<b>4328M</b>	100 meter	38.90

### Lines Only, without Reel, with Thongs

Number	Length	Each
<b>04100</b>	100 foot	\$ 7.40
<b>04150</b>	150 foot	10.40
<b>04200</b>	200 foot	13.00
<b>04300</b>	300 foot	19.80
<b>04500</b>	500 foot	33.30
<b>04066</b>	100 link	6.00
<b>04132</b>	200 link	10.40
<b>04082M</b>	25 meter	7.10
<b>04100M</b>	30 meter	8.60
<b>04164M</b>	50 meter	14.10
<b>04328M</b>	100 meter	25.90

★Special "Canyon" Chain Tape Marked in Links: This Tape is of exactly same general description and same type of graduation as those above but 5 chains, i.e., 500 links long and marked in links. It is subdivided as follows:

First 10 links to 10ths of links. Balance of first 100 links to links.

Balance of tape every 10 links only.

**No. 04330GL Chain Tape. Length: 5 chains. Without Reel. With Thongs. Each \$21.40**  
(Similar Tape can also be supplied 8 chains long)

### Reels Only

For 100, 150 and 200-ft., 100 and 200-link, and 25, 30 and 50-meter Tapes. . Each \$11.10  
For 300 and 500-ft., and 100-meter Tapes. . . . . Each 13.00

Shipping Weight: Average, for above tapes without reel,  $1\frac{1}{4}$  lbs. per 100 feet.

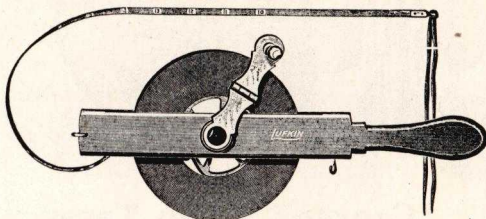
NOTES: Extra Foot Before Zero in 100ths, Numbered Right to Left—Above tapes so marked at no extra charge—Specify by suffix "B," as No. **4100B**.

End Feet in Inches and 8ths—Above tapes so marked, no extra charge



## Topographic Trailer Tape

(Slope Correction Tape)



Used by the United States Forest Service, the Indian Service, by forest rangers, forestry schools, etc. A sturdy steel tape and reel. Line  $\frac{1}{4}$  inch wide, approximately .020 inch thick. All graduations etched into raised bright portions, except zero, one and two chain points, which are on brass sleeves securely fastened to tape.

Tape  $2\frac{1}{2}$ -chains (165 feet) long. Graduated first two chains (200 links) to links; remaining half chain carries slope graduations numbered 5 to 50. Similar graduations, numbered 6 to 80 and used for very steep slopes, appear on back of the tape starting opposite the 1-chain point.

Heavy brass end clips, and each tape supplied with a pair of leather thongs. Furnished with or without reel. Line is readily detached from reel. Reel of polished hardwood with folding winding handle and nickel plated mountings.

Determine slope by using a topographic level. Reading the slope on the arc, measure two chains on the slope and as many graduations on the trailer as the arc reading shows. This distance measured on the slope represents a horizontal distance of two chains. In similar manner, one chain horizontal distance is determined by using the trailer graduations which appear on back of tape commencing opposite the 1-chain mark.

No.	Length	Each
<b>5165T</b> Topographic Trailer Tape with Reel and Thongs	$2\frac{1}{2}$ chains	\$18.75
<b>05165T</b> Topographic Trailer Tape without Reel, with Thongs	$2\frac{1}{2}$ chains	14.25
(Length of above tapes is 2 chains plus trailer)		
Weight each: Without reel 3 lbs.; With reel 4 lbs.		

NOTE: Tapes furnished with extra link before zero in 10ths, no extra charge.

## Shoulders on Chain Tapes



In chaining some surveyors use tapes equipped with shoulders, one at zero and one at last graduation, to assist in locating and holding these points. These shoulders are securely riveted to the tape line. They can be supplied on any of our  $\frac{1}{4}$  inch and  $\frac{5}{16}$  inch wide Chain Tapes.

Shoulders.....Extra, per pair \$0.70

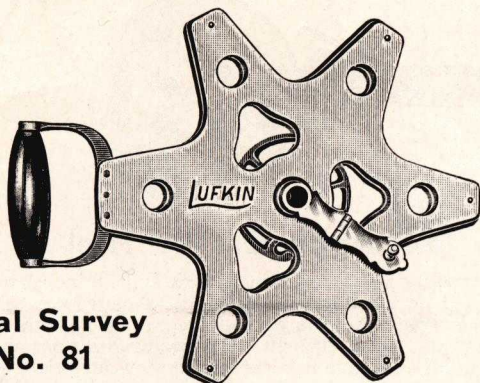
## Leather Thongs for Tapes

Thongs same as regularly furnished with our Chain Tapes. These are 36 inches long,  $\frac{1}{4}$  inch wide. They are chrome tanned and practically unbreakable.

Leather Thongs Only.....Per pair \$0.80



On This Page and the One Following We List Chain Tape Reels  
Only of Patterns We Offer in Addition to Those  
Shown with Tapes on Pages 44 to 47

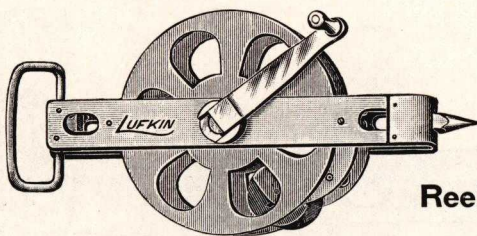


**Geological Survey  
Reel No. 81**

A sturdy 6-arm Reel of rust-proof metal with sides perforated. Has long, folding winding handle, large drum and polished hardwood "D" carrying handle.

Made in one size only,  $11\frac{1}{4}$  inch diameter. Will accommodate  $\frac{1}{4}$  and  $\frac{5}{16}$  inch Etched Chain Tapes 300 feet long, and  $\frac{3}{16}$  inch Babbitt Tapes 200 feet long, i.e., lines such as Nos. **09300**, **05300** and **03200** shown pages 44, 45 and 46.

**No. 81 Reel. . . . Each \$22.00**



**Reel No. 1914**

A metal reel with lock handle, sturdy yet of medium weight, and in dull nickel plated finish. Winding reel or spool is 7 inches in diameter, and frame in which it is mounted is 12 inches long overall, exclusive of carrying handle and spike end. The one-piece lock handle gives 5 inches winding leverage and has 2 inch hand knob easily giving firm hold. Winding handle turns over and hand knob then enters hole in either end of frame, thus locking the tape at any point. Hardwood tension roller rides on the tape, helping it to wind across evenly and tightly. Spike or point aids in holding reel firmly when line is being withdrawn or rewound. It is regularly supplied on all except 100 foot size.

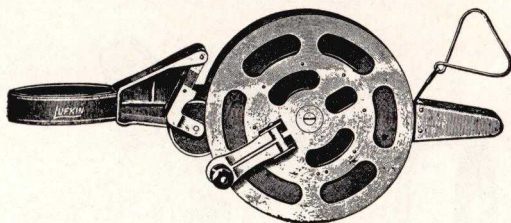
Reel No. 1914 can be used with any of our Chain Tapes, pages 44 to 47, and is especially recommended for the longer ones and the babbitt tapes. It is made in three capacities, varying only in width. The inside width of tape spool for the 100 foot is  $\frac{7}{8}$  inch, for the 200 and 300 foot is  $1\frac{3}{4}$ , and for the 500 foot is  $2\frac{3}{4}$  inches.

**In Ordering Always State Length, Width and Type of Line to Be Accommodated.**

<b>No. 1914</b>	100 ft. capacity Reel . . . . .	Each \$23.00
<b>No. 1914</b>	200 and 300 ft. capacity Reel . . . . .	Each 26.00
<b>No. 1914</b>	500 ft. capacity Reel . . . . .	Each 27.00



**On This Page and the One Preceding We List Chain Tape Reels  
Only of Patterns We Offer in Addition to Those  
Shown with Tapes on Pages 44 to 47**



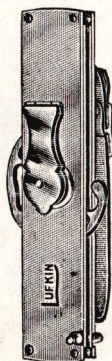
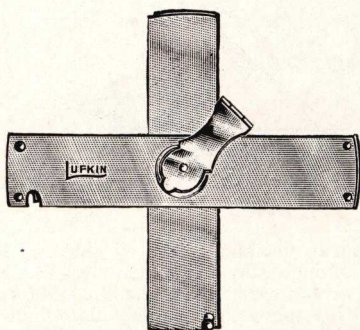
### **"Cripple Creek" Reel**

A durable, heavy duty reel, of perforated disk type, 8 inches in diameter, of steel, nickel plated, mounted on an aluminum frame 15 inches long. The winding handle gives over 4 inches leverage and has extra large extension hand grip. Construction makes reeling up easy and rapid. Hardwood tension roller rides on the tape, aiding it to wind evenly and tightly. Frame has leather loop for carrying reel suspended.

Made in one size only, accommodating  $\frac{1}{8}$  inch wide Etched Chain Tapes up to 1,000 feet long,  $\frac{1}{4}$  inch up to 500, and Babbitt Tapes up to 300 feet.

Staff for "Cripple Creek" Reel is of hardwood, nicely polished. It is 40 inches long, has at one end aluminum socket head and set screw for mounting reel to staff, and at the other end steel point for firmly setting in the ground.

"Cripple Creek" Reel (without staff) ..... Each \$37.00  
Staff for "Cripple Creek" Reel..... Each 5.60



### **Reel No. 61**

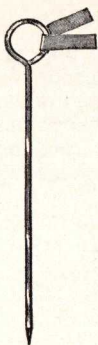
A compact, cross-arm all-metal reel in dull nickel plated finish. Has leather strap handle, and long, folding winding handle. With tape line removed, one cross-arm folds straight inside the other, as illustrated above, handy to carry. Made in four sizes.

Will accommodate  $\frac{1}{4}$  inch Etched Chain Tapes, such as No. 05100 series, page 45.

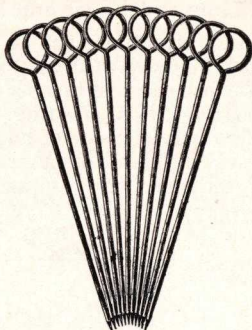
**In Ordering Always State Length of Tape Line to Be Accommodated.**

No. 61	100 ft. capacity Reel.....	Each \$ 7.40
No. 61	150 and 200 ft. capacity Reel.....	Each 8.40
No. 61	300 ft. capacity Reel.....	Each 9.30
No. 61	500 ft. capacity Reel.....	Each 11.10

## Surveyors Steel Arrows



No. 591



Nos. 592 to 595

All of these Arrows are of oil tempered spring steel, nicely formed and with sharp point. All are smooth and well finished.

No. 591 is the best Arrow made. It is nickel plated and highly polished. It has red linen flag securely sewed to ring. It is  $\frac{3}{16}$  inch square, hence very stiff. Being square, measurements to or from it can be taken most accurately. Because of its size and shape it will stand up when reaming hole in hard soil or ice and sets very firmly.

Nos. 592, 593, 594 and 595 have ring enameled bright vermilion.

No.	Length	Diameter	Shape	Finish	Wt. per Set of Eleven	Price per Set of Eleven
591	14 inch	$\frac{3}{16}$ inch	Square	Nickel plated	2 lbs.	\$5.60
592	10 inch	$\frac{3}{16}$ inch	Round	Nickel plated	1 $\frac{1}{4}$ lbs.	2.40
593	14 inch	$\frac{3}{16}$ inch	Round	Nickel plated	1 $\frac{3}{4}$ lbs.	2.80
594	10 inch	$\frac{9}{64}$ inch	Round	Plain	$\frac{3}{4}$ lb.	1.50
595	14 inch	$\frac{9}{64}$ inch	Round	Plain	1 lb.	1.70

Packing: One set of Eleven Arrows in a box

No. 596 Steel Carrying Ring for Arrows.....Price, each \$0.40

No. 597 Quiver for Carrying Eleven Arrows.....Price, each 4.50

Quiver is of genuine leather, round, with arrow-ring strap and belt loop.

Specify 10-inch or 14-inch Quiver.

## Engineers Tape Ring No. 580

(PATENT PENDING)



A detachable ring of improved type, for Engineers  $\frac{1}{4}$  inch Tapes. A pair of these is regularly supplied with each Engineers Pattern Tape, pages 19 to 22 and 24 to 26, inclusive. It is a sturdy,  $1\frac{1}{8}$  inch round finger ring, superior to all others. Flexible tape strip of this ring extends  $3\frac{1}{2}$  inches along back of tape line and aids greatly to prevent sharp kinking and breaking of line. Sliding the tape line through guide lips and over pin of this ring to attach it, also detaching, is far simpler than with the old type. Ring does not interfere with reading of graduations. Rings supplied also separate from tapes.

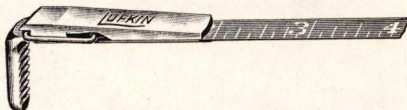
No. 580 Tape Rings. For Engineers  $\frac{1}{4}$ -inch Tapes.....Per pair \$1.00



## Detachable Hooks for Steel Tapes

**Hooks Save Time and Labor and Every User of Steel Tapes Should Have One**

These hooks oftentimes enable one man, unassisted, to take measurements. They are sturdy and are easily slipped on and off tape, yet cannot fall off. They are suitable for use on steel tapes such as the "Challenge" and others having the standard type, riveted-on, end ring. When applied to such tapes measuring from end of ring, zero falls at inside of hook. These hooks have toothed face and take a firm, square grip on metal or other material as soon as tension is applied to the line, yet release themselves when tension is released.



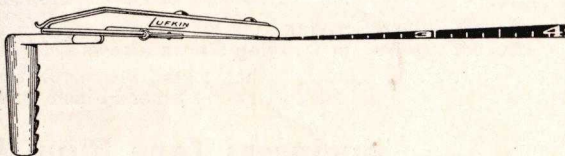
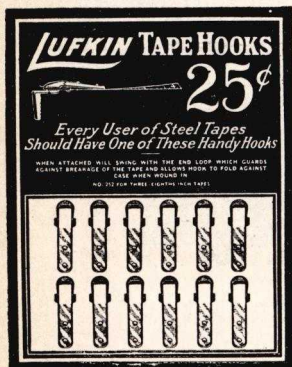
### No. 551 Series Tape Hooks

(For General Description, See Above)

Hooks of Series **551** are made for  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch steel tapes. They are of brass, heavily nickel plated. They have tape guide or channel, and spring for holding line in the guide.

No. 551	$\frac{1}{4}$ inch Tape Hook	Each	\$0.70
No. 552	$\frac{3}{8}$ inch Tape Hook	Each	.70
No. 552 $\frac{1}{2}$	$\frac{1}{2}$ inch Tape Hook	Each	.80

Packing: One dozen in a box



### No. 252 Tape Hook

(For General Description, See Top of Page)

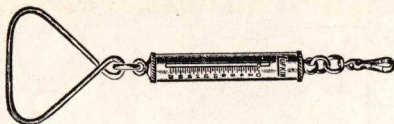
Hook No. **252** is made for only  $\frac{3}{8}$  inch wide steel tapes. It is of composition metal. It tilts or swings with ring of tape, guarding against breakage and also permitting tape to be fully wound into case with hook attached. It is popular priced and put up on an attractive display card with easel.

No. 252	$\frac{3}{8}$ inch Tape Hook	Per doz.	\$3.00
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Packing: One dozen on display card

NOTES: Hook-Ring—For this permanently attached hook for  $\frac{3}{8}$  inch steel tapes, see page 16.  
Other Permanently Attached Hooks—For such see Tree Tapes, page 18; Millmens Tapes, page 57.

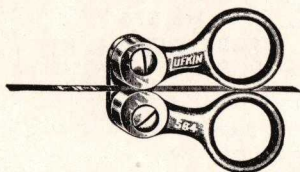
## Tape Tension Handle



For applying and determining the exact tension applied. Used on steel tapes in precise work to insure accurate, uniform results. Fitted with snap and large hand ring. Made of brass, nickel plated. Capacity, 30 pounds, by half pounds.

**No. 586 Tension Handle.** Capacity, 30 lbs.....Price, each \$5.60  
Weight, each, 6 ozs.

## Tape Clamp Handle



For positive and quick grip of a steel tape at any point, so light or heavy tension can readily be applied and held. Sturdy, made of brass, nickel plated. Applied and removed by simply operating the handle. Properly used, will not damage a tape in any way.

**No. 584 Clamp Handle**.....Price, each \$2.80  
Weight, each, 5 ozs.

## Temperature Scale



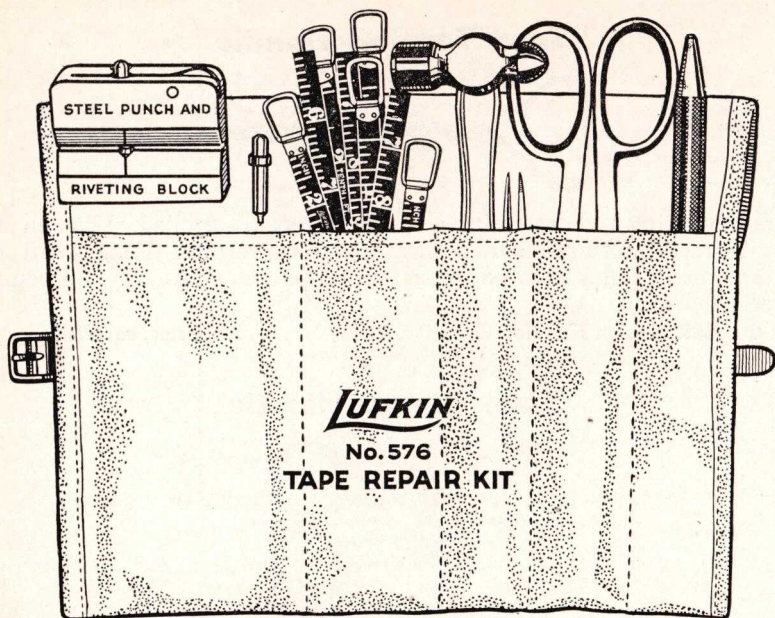
Scale in Actual Length for 100 Foot Tape

For most exact results the temperature in which a measuring tape is actually used must be taken into account. Temperature scale on a steel tape is a series of graduations at the last end, corresponding to the expansion and contraction of the tape over a range of temperatures, which are indicated opposite the various lines. This scale takes the place of the terminal mark, that point falling on the line in the scale representing the temperature prevailing.

We are prepared to put, on all steel tapes  $\frac{1}{4}$  inch and over in width, Temperature Scale on basis of the Fahrenheit thermometer for those 50, 100, 150, 200 and 300 feet long; centigrade basis for metric tapes 20 and 100 meters long.

**Extra for Temperature Scale**.....Per tape \$1.60





## Tape Repair Kit

**Suitable for Bench or Field Use. Put Up in Leatherette Case.**

A sturdy and most practical all-purpose outfit for splicing steel tapes of all widths and weights. Suitable alike for tape users and for repair departments of engineering, instrument and supply houses, etc.

The solid steel punch block,  $2\frac{1}{8}$  inches high, sits firmly on its  $\frac{7}{8} \times 2\frac{3}{4}$  inch base. Its punching plunger has head for striking with hammer and at one blow will pierce one or two thicknesses of any tape. Light hammer tap on fulcrum lever raises the plunger. Front face of block has notch, tape slot and sighting line, so accurate locating of holes is simple. Back face has flush inset, hardened riveting block. Punching plunger is readily removed by withdrawing set screw, and one extra plunger is furnished with each Kit.

Kit complete is compactly put up in leatherette case with tie strap, and folds to  $9 \times 3\frac{1}{2} \times 1\frac{1}{2}$  inches.

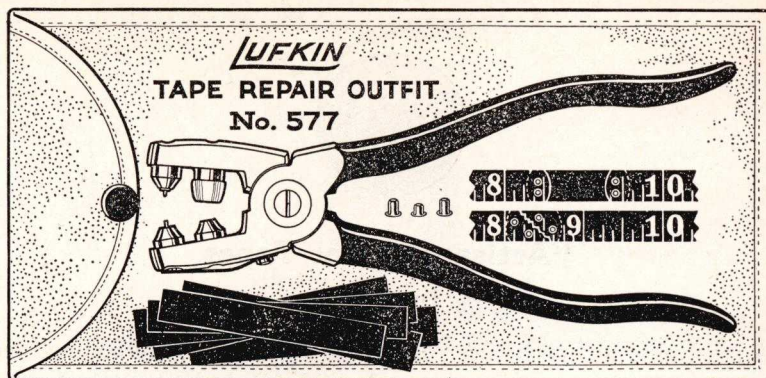
### *Kit contains the following items:*

- |   |  |
|---|--|
| Steel Punch Block with Punching Plunger (also riveting block).  |  |
| Pair of Cutting Snips (8-inch).   | Pair of Tweezers.                            |
| Riveting Hammer (8-inch).   | Solid Steel Rivets (1,000 in screw top box). |
| Rivet Set.  | Extra Punching Plunger (for punch block).    |
| Steel Tape Repair Pieces (one lot of various widths, weights and graduations, with and without ring). |  |
| Leatherette Case for all above.   |  |

**No. 576 Tape Repair Kit.** In Leatherette Case.....Each \$17.60  
Weight of Kit Complete,  $2\frac{7}{8}$  lbs.

NOTES: Tape Repair Tool With Eyelets—See page 55.  
Tape Repair Sleeves—See page 55.





## Eyelet Tape Repair Outfit

**Designed for Field Use. Put Up in Leatherette Case.**

The hand tool of this Outfit punches and splices steel tapes, using eyelets.

*Outfit contains the following items:*

Punch and Eyeleting Tool.	500 Short Eyelets.
Ungraduated Steel Tape Pieces.	4 "Eureka" Repair Sleeves.
500 Long Eyelets.	Leatherette Container for all above.

With this, secure and accurate splices as shown above can be quickly made on the job or elsewhere, often saving much valuable time. "Eureka" Sleeves are included as they are most practical for splicing heavy  $\frac{1}{4}$  and  $\frac{5}{16}$  inch Chain Tapes. A soldered splice is made by butting the broken ends together inside the Sleeve and burning out a match underneath it.

The Leatherette Container or Case has snap fastener. It keeps the whole Outfit intact and convenient to carry.

**No. 577 Tape Repair Outfit.** In Leatherette Case. Weight complete,  $\frac{3}{4}$  lb.. Each \$7.90

NOTE: Tape Repair Kit for Bench or Field Use—See page 54.

## "Eureka" Tape Repair Sleeves

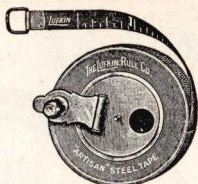
An efficient little outfit to quickly splice steel tapes in the field. These thin, sheet metal sleeves are ready coated with solder and flux. Twelve sleeves of one size are packed in small, durable box with piece of emery cloth. Directions on Each Box.

First clean the tape ends and hammer them if there is any burr. Tape is then spliced accurately and easily by butting broken ends together inside sleeve, tapping sleeve until tight, burning out a match underneath it, and holding tape until cool. This securely welds sleeve to tape.

**Always Specify "Eureka" Sleeves and Tape Width**

For Tape Width	Price Per Box of 12
$\frac{1}{8}$ inch.....	\$0.75
$\frac{1}{4}$ inch.....	.75
$\frac{5}{16}$ inch.....	.75
$\frac{3}{8}$ inch.....	.75
$\frac{1}{2}$ inch.....	.75





## "Artisan" Steel Tapes

$\frac{3}{8}$  Inch Wide

A steel tape for mechanics. Line 8 to 20 feet long, in staunch metal case that will withstand knocking about in tool chest, etc. Line also sturdy, being same width and weight as our longer steel tapes such as the "Rival." High grade steel line, distinctly marked and with "Instantaneous" Readings and "Nubian" Finish. Heavy metal case of same pattern as our "Rival,"  $2\frac{1}{2}$  inches in diameter, well finished, nickel plated, and with knurled edge affording firm grip. Folding flush handle opened by pressing pin on opposite side. Measurements guaranteed accurate.

### Marked Feet, Inches and 16ths, One Side Only

No.....	108	112	115	120
Length, feet.....	8	12	15	20
Weight, per doz., lbs.....	$3\frac{3}{4}$	$3\frac{3}{4}$	4	$4\frac{1}{2}$
Price, per doz.....	\$24.00	\$28.80	\$33.60	\$38.40

### Marked One Side Feet, Inches and 16ths; Other Side Millimeters

No.....	112EM	115EM
Length.....	12 ft. ( $3\frac{1}{2}$ meters)	15 ft. (5 meters)
Price, per doz.....	\$34.20	\$40.20

### With Diameter and Standard Measurements

Applied to any circumference, give at direct reading diameter to 64ths of an inch, also circumference to 16ths inch.

Marked one side consecutive inches to 16ths;

Other side diameter inches with extra diameter inch before zero to 64ths

No.....	108P	112P	115P	120P
Length, standard inches.....	96	144	180	240
Length, diameter inches.....	30	46	57	76
Price, per doz.....	\$28.80	\$34.20	\$40.20	\$48.00

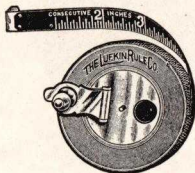
(For other tapes with diameter measurement, see pages 17 and 61.)

NOTES: "Artisan" Millmens Tape With Hook—See page 57.

"Artisan" Tree Tape For Foresters—See page 18.

## Millmens Steel Tape with Hook

### "Artisan" Pattern



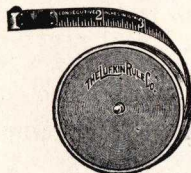
**Used on Metal Sheets, Tubing, Etc., at Mills and Warehouses  
Enables One Man Unassisted to Take Measurements**

This Millmens Tape we especially recommend, because of its durability. A  $\frac{3}{8}$  inch wide, standard weight, steel tape in "Nubian" Finish, with flat "U" shape, steel hook riveted to first end, and the line reinforced at that end. Zero falls at inside of hook. Line marked one side only, consecutive inches to 16ths, i.e., inches numbered from 1 to 144. Sturdy and well finished metal case,  $2\frac{1}{2}$  inches in diameter, heavily nickel plated and with knurled edge affording firm grip. Folding flush winding handle opened by pressing pin on opposite side.

Number		Length	Wt. Per Doz.	Price, Per Doz.
<b>112CH</b>	Millmens Tape With Case	144 inches	4 lbs.	\$32.40
<b>0112CH</b>	Millmens Tape Line Only	144 inches	$\frac{3}{4}$ lb.	18.00

## Millmens Steel Tape with Hook

### Spring-Wind Pattern

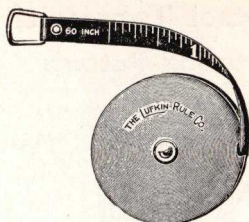


With this tape, one man unassisted can readily take measurements of metal sheets, tubing, etc. It differs from one above in being spring-wind pattern and having narrower, lighter weight line. This  $\frac{1}{16}$  inch wide line is in "Nubian" Finish, and has flat, "U" shape, steel hook riveted to first end and line reinforced at that end. Zero falls at inside of hook. Line is marked one side only consecutive inches to 16ths (inches numbered 1 to 144). Square edge, nickel plated case, spring-wind with center push button and ratchet stop.

Number		Length	Wt. Per Doz.	Price, Per Doz.
<b>1512CH</b>	Millmens Tape With Case	144 inches	3 lbs.	\$39.60
<b>01512CH</b>	Millmens Tape Line Only	144 inches	$\frac{1}{2}$ lb.	21.80

NOTE: Millmens Tapes Marked Feet, Inches and 16ths—Price same as in consecutive inches Specify as "112H" and "1512H."





## Pocket Steel Tapes

Pocket Tapes are more universally used than any other class of measuring tapes. Therefore, they are carried by hardware and tool stores, engineering, technical and surgical supply houses, stationery, drug and department stores, novelty and gift shops. They are also extensively employed as advertising specialties, for such see page 248.

Below we list our highest grade yet most popular lines of Pocket Steel Tapes. With reasonable care they give long and satisfactory service. Flexible, finely tempered steel line, clearly marked and with "Nubian" Finish. Metal case heavily nickel plated, compact and neat yet sturdy; 36 inch tape case is  $1\frac{7}{16}$  inch in diameter. Spring-wind with center push button and ratchet stop.

### With One-Quarter Inch Tape Line

#### Marked Inches to 16ths, One Side Only

No.....	143	145	146	148★
Length, inches .....	36	60	72	96
Weight, per doz., lbs.....	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Price, per doz.....	\$10.20	\$13.20	\$14.40	\$20.40

(★When marked feet, inches and 16ths, known as 148F. Price same as 148.)

#### Marked Feet, 10ths and 100ths of Feet One Side; Inches to 16ths Other Side

No.....	143D	145D	146D	148D
Length, feet.....	3	5	6	8
Price, per doz.....	\$10.80	\$14.40	\$16.80	\$23.40

#### Marked Inches to 16ths One Side; Millimeters Other Side

No.....	143EM	145EM	146EM	148EM
Length, inches ...	36 (1 meter)	60 ( $1\frac{1}{2}$ meter)	72 (2 meter)	96 ( $2\frac{1}{2}$ meter)
Price, per doz....	\$10.80	\$14.40	\$16.80	\$23.40

Packing: One in a box, six in a carton

### With Five-Sixteenths Inch Tape Line

No. 1512	12 foot. Marked feet, inches and 16ths, one side.....	Per doz. \$35.70
No. 1512D	12 foot. Marked feet, inches and 16ths, one side; feet, 10ths and 100ths feet, other side.....	Per doz. 41.40
No. 1512EM	12 foot ( $3\frac{1}{2}$ meters). Marked feet, inches and 16ths, one side; millimeters other side.....	Per doz. 41.40

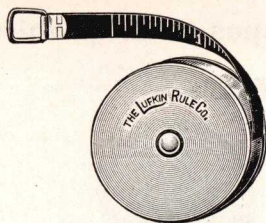
Packing: One in a box

NOTES: Pocket Linen Tapes—See page 76.

Pocket Tape-Rules—See pages 78 to 85.

Number 143 Series and No. 1512 With Diameter Measurement—See page 61.

Number 1512CH Millmens Tape with Hook—See page 57.



## "Marvel" Pocket Steel Tapes

The "Marvel" is a serviceable tape, both the line and the case being superior to those of other popular priced Pocket Steel Tapes. Steel line has clear markings and "Nubian" Finish. Square edge metal case, nickel plated. This tape is spring-wind, with center push button and ratchet stop.

### With One-Quarter Inch Tape Line

#### Marked Inches to 16ths, One Side Only

No.	3143★	3145	3146
Length, inches.	36	60	72
Weight, per doz., lbs.	$\frac{3}{4}$	1	1
Price, per doz.	\$6.10	\$9.20	\$10.40

#### Marked Inches to 16ths One Side; Millimeters Other Side

No.	3143EM★	3145EM	3146EM
Length, inches.	36 (1 meter)	60 (1½ meter)	72 (2 meter)
Price, per doz.	\$7.40	\$10.40	\$12.30

Packing: ½ dozen in a box



★The best sellers, Nos. 3143 and 3143EM, are *regularly* put up in an attractive display box, containing one dozen tapes. This has proven the most effective method of selling popular priced pocket tapes.

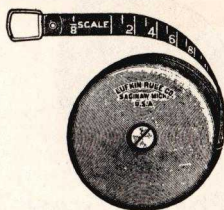
(These items can also be furnished in ordinary rather than display boxes, i.e., ½ dozen to a box, as listed above. Specify if so wanted.)

Number	Length	Wt., Per Doz.	Per Doz.
3143	36 inch	$\frac{3}{4}$ lb.	\$6.10
3143EM	36 inch (1 meter)	$\frac{3}{4}$ lb.	7.40

NOTE: "Marvel" Pocket Linen Tapes—See page 77.



## Pocket Steel Tapes with Architects Scales



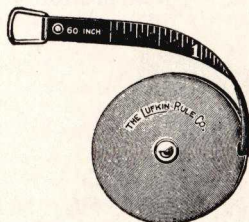
For quickly measuring scale drawings or blue prints, etc. Nos. **391** and **392** carry also standard linear measure. Steel line of highest grade,  $\frac{1}{4}$  inch wide, clearly marked and with "Nubian" Finish. Compact and neat yet sturdy case, heavily nickel plated. Spring-wind, with center push button and ratchet stop.

No.	Length	Markings	Price
<b>391</b>	60 inch.	$\frac{1}{8}$ inch architects scale, 1 to 480, one side; inches to 16ths on other side.....	Per doz. \$14.40
<b>392</b>	60 inch.	$\frac{1}{4}$ inch architects scale, 1 to 240, one side; inches to 16ths on other side.....	Per doz. 14.40
<b>393</b>	60 inch.	$\frac{1}{8}$ inch architects scale on one side; $\frac{1}{4}$ inch architects scale on other side.....	Per doz. 14.40

Weight per doz.  $1\frac{1}{2}$  lbs. Packing: One in a box, six in a carton

NOTE: Tape with Architects and Engineers Scales—See No. **398**, page 62.

## Pocket Steel Tapes with Type Measure



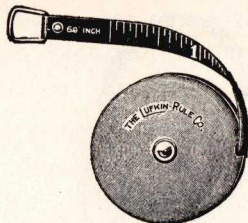
These are highest grade,  $\frac{1}{4}$  inch wide, 3-foot pocket steel tapes, carrying standard linear measurement and type or printers measurement. They are especially handy for those who have to do with type and space, with printing and illustration, advertising, etc. They are of neatest pocket size,  $1\frac{7}{16}$  inch diameter. The lines have "Nubian" Finish. Cases are compact yet sturdy, nickel plated, spring-wind with center push button and ratchet stop.

- No. **143A** has agate line measurement one side up to 504 agate lines (14 lines per inch, i.e., 36 inches); other side 36 standard inches to 16ths.  
 No. **143T** has pica and nonpareil, i.e., 12 and 6-point type measurement up to 218 picas (approximately 36 inches) on one side; other side 36 standard inches to 16ths.

No. <b>143A</b> Type Tape. 36 inch .....	Per doz. \$13.50
No. <b>143T</b> Type Tape. 36 inch .....	Per doz. 13.50

NOTE: Flexible-Rigid Tape-Rules with Type Measure—See page 85.

## Pocket Steel Tapes with Diameter Measure



These are highest grade, corresponding with our No. 143 series, page 58. Lines carry standard and diameter measure and have "Nubian" Finish. Sturdy cases, nickel plated, spring-wind with center push button and ratchet stop.

Applied to circumference of columns, piping, shafts, wire rope and cable, in fact any circular object, these tapes give directly not only the circumference to 16ths inch, but the diameter either to 64ths or 100ths inch. They are handy also for converting diameter into circumference and vice versa.

### With One-Quarter Inch Tape Line

Standard Inches to 16ths One Side  
Diameter Inches to 64ths Throughout Other Side

No.	143P	145P	146P
Length, inches.	36 (12 dia. in.)	60 (19 dia. in.)	72 (23 dia. in.)
Price, per doz.	\$13.50	\$18.00	\$21.00

Standard Inches to 16ths One Side  
Diameter Inches to 100ths Throughout Other Side

No.	143PD	145PD	146PD
Length, inches.	36 (12 dia. in.)	60 (19 dia. in.)	72 (23 dia. in.)
Price, per doz.	\$13.50	\$18.00	\$21.00

Packing: One in a box, six in a carton

### With Five-Sixteenths Inch Tape Line

Marked One Side Standard Inches to 16ths; Other Side Diameter Inches with Extra Diameter Inch Before Zero to 64ths. Serves same purposes as detailed above but is a longer and slightly heavier tape line.

No. 1512P Length: 144 inches (46 diameter inches)..... Per doz. \$41.40

## Short Diameter Tapes without Cases



Most used on cable, conduit, cartridges and other small round objects. Applied to circumference give at direct reading, both circumference and diameter. Thin and very flexible, 1/4 inch steel tapes, without cases or rings. One end 5/8 inch wide, formed and with slot, as shown above, through which balance of tape passes to take close measurement, zero falling at square end of slot.

No.		Markings	Each
38P	Diameter Tape.	12 standard inches to 16ths one side; 4 diameter inches to 64ths other side.....	\$2.30
38PD	Diameter Tape.	12 standard inches to 16ths one side; 4 diameter inches to 100ths other side.....	\$2.60

(Nos. 38P and 38PD can be supplied in 10-inch, 15-inch, and other lengths.)

NOTE: Other Tapes with Diameter Measure—See pages 17 and 56.



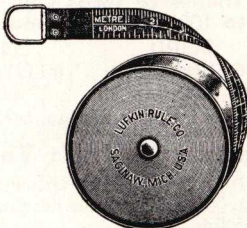
Pole Tapes



Six-foot steel tapes used to determine pole sizes. Principal users are telephone, telegraph, power, light and transit companies, pole suppliers and utility appraisers. These tapes have blank space each end and "Nubian" Finish. They are extra heavy, 1/4 inch wide, with heavy metal eye first end, one-inch harness ring last end, and without case. No. 1 is for measuring pole circumference; No. 1P, applied to pole circumference, shows at a direct reading both circumference and diameter.

No.	Length and Markings	Price
1	Pole Tape. 72 standard inches to 16ths, one side.....	Each \$2.30
1P	Pole Tape. 72 standard inches to 16ths, one side; 23 diameter inches to 64ths, other side.....	Each 3.20

Metric Conversion Tape



Especially valuable to exporters, importers, shippers, schools, etc. For determining metric equivalents of English weights and measures, and vice versa, also for English and metric linear measuring. The English and metric weights and measures are placed in their corresponding relations, so one can be converted directly into the other. A 3/8 inch wide steel tape in "Nubian" Finish. Metal case, spring-wind with center push button and ratchet stop. Line marked one side upper edge two meters to millimeters, lower edge 78 3/4 inches to 16ths; other side upper edge to represent 1120 pounds, lower edge 508 kilograms, both properly subdivided.

No. 396 Metric Conversion Tape.....Price, per doz. \$34.70

Architects and Engineers Tape

A handy combination. A 3/8 inch wide, 2 meter (78 3/4 inch) steel tape in "Nubian" Finish. Metal case, spring-wind with center push button and ratchet stop. One side of line marked full length upper edge to millimeters, lower edge inches to 16ths. Other side laid off in 12-inch sections, marked both edges, and carrying 1/8, 3/8, 1/4, 1/2, 3/4, 1, 1 1/2 and 3-inch architects scales with subdivisions, and engineers scales of 10, 20, 30, and 40 parts to the inch.

No.	Length	Price
398	Architects and Engineers Tape. 2 meters (78 3/4 inches).....	Per doz. \$42.00

## Special Graduations on Steel Tapes

Following are some of the special graduations we are equipped to put on Steel Tapes of widths indicated. Prices for these special markings quoted on request.

### ONE-QUARTER INCH STEEL TAPES

Feet and inches only, inches not subdivided.  
Feet and 10ths only, 10ths not subdivided.  
Feet, inches and quarters.  
Feet, inches and 32nds.  
Feet, inches and 8ths, left hand (numbered right to left).  
Feet, 10ths and 100ths of feet, left hand (numbered right to left).  
Feet, 10ths and 100ths of feet, upper edge (regular is lower edge).  
Consecutive inches to 16ths (up to 360 inches).

Links and poles or rods. (Also links to 10ths and to 100ths throughout).  
Metric, to  $\frac{1}{2}$  centimeters throughout.  
Diameter measurements.  
Vara measurements.  
Nya and Gamla (Swedish) measurements.  
Norsk or Dansk (Scandinavian) measurement.  
Vershok and Sagene (Russian) measurements. (Pocket Tapes).

### THREE-EIGHTHS INCH STEEL TAPES

Feet and inches only, inches not subdivided.  
Feet, inches and halves.  
Feet, inches and quarters.  
Feet, inches and 10ths of inches.  
Feet, inches and 16ths (see footnotes).  
Feet, inches and 32nds.  
Feet, inches and 8ths, left hand (numbered right to left).  
Feet, inches and 16ths, left hand (numbered right to left).  
Feet, 10ths and 100ths of feet, left hand (numbered right to left).  
Consecutive inches to 16ths (up to 600 inches, i.e., 50 feet).  
Yards and quarter-yards only (up to 20 yards).  
Yards to  $\frac{1}{2}$  yard (up to 20 yards).

Yards, 10ths and 100ths of yards (up to 22 yards).  
Links and poles or rods. (Also links to 100ths throughout).  
Metric, to  $\frac{1}{2}$  centimeters throughout.  
★Metric, to millimeters throughout.  
Metric and English on same side of tape line.  
Automobile rim and rim tolerance measurements.  
Burgos (Spanish Vara) measurement.  
Other Vara measurements.  
Nya and Gamla (Swedish) measurements.  
Norsk or Dansk (Scandinavian) measurement.  
Zar (Persian) measurement.  
Vershok and Sagene (Russian) measurements.

### ONE-HALF INCH STEEL TAPES

Feet and inches only, inches not subdivided.  
Feet and 10ths only, 10ths not subdivided.  
Feet, inches and quarters.  
Feet, inches and 10ths of inches.  
Feet, inches and 12ths of inches.  
Feet, inches and 16ths (see footnotes).  
Feet, inches and 8ths, left hand (numbered right to left).  
Feet, inches and 16ths, left hand (numbered right to left).  
Consecutive inches to 8ths (up to 600 inches, i.e., 50 feet).

Links and poles or rods.  
★Metric, to millimeters throughout.  
Metric and English on same side of tape line.  
Automobile rim tolerance measurement.  
Vara measurement.  
Nya and Gamla (Swedish) measurements.  
Norsk or Dansk (Scandinavian) measurement.  
Vershok and Sagene (Russian) measurements.

★NOTE: Millimeters Throughout—For this special graduation on any  $\frac{3}{8}$  or  $\frac{1}{2}$  inch steel tape. 10c per meter added to price of regular marking.



## Steel Tape Standards

### Tension, Temperature, Standardization, etc.

**LUFKIN** Steel Tapes are made to bench standards certified accurate by the United States Department of Commerce, National Bureau of Standards, Washington, D.C.

The temperature standard for steel tapes is 68° Fahrenheit (equal to 20° centigrade). Official coefficient of expansion of steel tapes is 0.00000645 per degree Fahrenheit, 0.0000116 per degree centigrade. This amounts to 0.000645 foot or 0.00774 inch per degree Fahrenheit on a 100 foot tape; on a 50 foot to just one-half, and on a 200 foot to double that distance per degree. The same coefficient may safely be used for our stainless steel tapes also. For illustration of length variation with temperature, see page 53.

Standard tension for steel tapes supported horizontally throughout entire length, on flat surface is 10 pounds (4.5 kilograms) for tapes from 25 to 100 feet or from 10 to 30 meters long. For tapes longer than 100 feet or 30 meters it is 20 pounds (9 kilos.).

For tapes suspended, i.e., supported at ends only, no official tension has been set. This tension does not follow fixed rule; it varies not only with length and weight of tapes, but often differs on tapes which take one and the same tension of accuracy when supported throughout. Below we give averages of tests made by the U. S. Bureau of Standards of many of our steel tapes suspended. While this may serve as a practical guide for these lengths, being an exact average for large number of tapes tested, it is offered only as a working basis from experience, and not as fully taking the place of test of any individual tape.

#### Tapes Suspended Horizontally, Supported at Ends Only, Ends Level

Kind of Tape	Length	Tension of Accuracy Supported Throughout	Tension of Accuracy Supported Ends Only
$\frac{3}{8}$ " Standard Weight Tapes.....	50-ft.	10 lbs.	13 lbs.
$\frac{1}{2}$ " Standard Weight Tapes.....	50-ft.	10 lbs.	13 lbs.
$\frac{3}{8}$ " Standard Weight Tapes.....	100-ft.	10 lbs.	16 lbs.
$\frac{1}{2}$ " Standard Weight Tapes.....	100-ft.	10 lbs.	16 lbs.
$\frac{1}{4}$ " Engineers (.012") Tapes.....	100-ft.	10 lbs.	18 lbs.
$\frac{1}{4}$ " Engineers Heavy (XX) Tapes.	100-ft.	10 lbs.	24 lbs.
$\frac{1}{4}$ " Chain Tapes.....	100-ft.	10 lbs.	24 lbs.
$\frac{1}{8}$ " Chain Tapes.....	100-ft.	10 lbs.	16 lbs.

The Bureau is not equipped to test tapes suspended throughout of lengths over 150 feet or 50 meters, but issues a circular giving the theory and a formula for calculating proper tension for longer steel tapes suspended.

Temperature and tension need be taken closely into account only on very precise work. We recommend Government test of tapes for such work or used as master standards. Such tests are made for a nominal fee by the Government Laboratories.

On customer's request we will, when a tape ordered is to be standardized, handle the details with the Laboratory, the extra charge being only Government test fee plus transportation. The usual test is: Tape supported throughout, comparisons made at ends only, certificate to show tension of accuracy at standard temperature. Such test gives the simplest working basis; tension handle shown on page 53 being used to apply proper pull. Temperature correction may be calculated or tape ordered bearing temperature scale (page 53).

The U. S. Bureau of Standards issues official certificate and places its seal on steel tapes coming within its standard specifications, and having, under standard conditions, a variation of not more than 0.1 inch per 100 feet. Among tapes that do not come within its standard specifications are those graduated on babbitt metal or having end ring included in measurement, (on such tapes the Government will issue test report). Therefore, whenever practical, when ordering standardized tapes of a type regularly measuring from end of ring, it is best to specify "blank space first end."



## Section Two

# LUFKIN

## WOVEN MEASURING TAPES

**LUFKIN** offers the world's best Woven Tapes, and the most complete and diversified assortment, ranging from the "Metallic" to the common Ass Skin Tape. All are made of selected yarns. In our own factories they are all so woven, finished and coated as to best protect against wear and moisture and to resist stretching and shrinking under actual conditions of use. We weave them all to width, with selvage, so edges will not fray out. All are clearly marked by the method long experience has proven most accurate. Figures are in two colors on all our long woven tapes, the foot or major division numbers in red, balance black. Cases are of good construction, those of leather are metal lined.

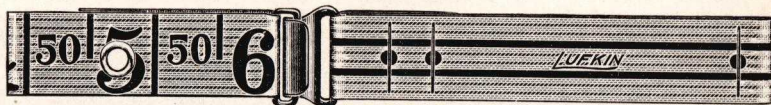
Because of the nature of the material, no fabric line can be guaranteed accurate under all conditions or should be depended upon for really close work. Ours are accurate within reasonable limits. Compared occasionally with a steel tape, good results may be obtained. For precise measuring a steel tape should be used, yet for some classes of work woven tapes are most practical and give satisfaction, particularly our better grades.

### *Instantaneous* READINGS. (ACTUAL SIZE)



Our  $\frac{5}{8}$  inch wide "Metallic" Tapes and "Sterling" Tapes have *Instantaneous* Readings, i.e., last preceding foot number repeated throughout at each inch or 10th of foot, and appearing in red. This keeps total reading directly before the eye, eliminates the chance of error in running back to last foot, and saves time.

### TAPE THREADER



Our "Metallic," "Junior Metallic" and "Sterling" Tapes have Patent Threader, making removal of old and attaching of a new line most simple. This is a 5-inch strip of the tape material, attached to winding drum and with hook at outer end. This hook fits flat ring on last end of tape line. It does so under tension so it will not unhook itself. Inserting new line in case simply means unhooking the old and hooking on the new; removal of drum or case screw being entirely unnecessary. Threader is handy also when wishing to use line without the case.

### POINT OF BEGINNING OF MEASUREMENT ON WOVEN TAPES

All Long Woven Tapes Measure From Outer End of Ring.

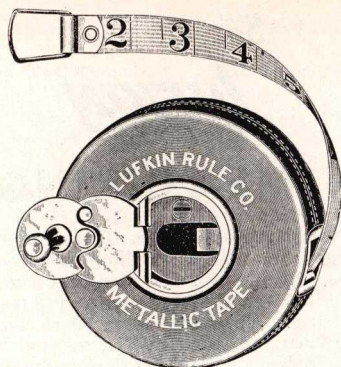
All Woven Pocket Tapes Have Blank Space First End.

(The above are our standard practices, but "Metallic" and "Sterling" Tapes will be supplied, without extra charge, with blank space first end, when so specified.)

### SPECIAL GRADUATIONS

In addition to the extensively used measurements (listed in this Catalog) we are prepared to put on Woven Tapes certain special and foreign markings. Among the latter are Burgos and other Vara standards, Norsk or Danish, and Nya and Gamla. Prices quoted on request.





## "Metallic" (Woven) Tapes

With Double-Folding Flush Handle

No. 600 Series.  $\frac{5}{8}$  Inch Wide.

The Lufkin "Metallic" is the best of Woven Tapes. It is extensively used where it is impractical to employ a steel tape and where steel tape accuracy is not required. This tape we weave, coat and mark by the most approved methods known to insure satisfactory service.

Line is of linen with metallic warp. It has "Instantaneous" Readings (last preceding foot number repeated at each inch or each 10th of foot). Markings are clear and figures prominent. First end has leather reinforcement. The case is of brown, selected, genuine leather, closely hand-stitched, and has plated steel liner. The winding handle is of finest construction, double-folding flush pattern opened by pressing pin on opposite side. Mountings nickel plated. Patent threader makes removal of an old and attaching of a new line most simple.

### Marked One Side Only

Feet, inches and half inches.....No.	600	601	603	604	605	606
Feet, 10ths and half 10ths ft.....No.	600D	601D	603D	604D	605D	606D
Length, feet.....	25	33	50	66	75	100
Weight each, ozs.....	10	11	15	18	21	25
Price, each.....	\$5.20	\$5.80	\$6.70	\$7.40	\$7.90	\$9.60

### Marked Links on Back

Feet and inches one side, links on back.....No.	600L	601L	603L	604L	605L	606L
Feet and 10ths ft. one side, links on back.....No.	600DL	601DL	603DL	604DL	605DL	606DL
Length, feet.....	25	33	50	66	75	100
Price, each.....	\$5.40	\$6.00	\$6.90	\$7.80	\$8.30	\$10.20

### Marked Metric and English

One Side Meters to Centimeters Throughout; Other Side Feet and Inches.

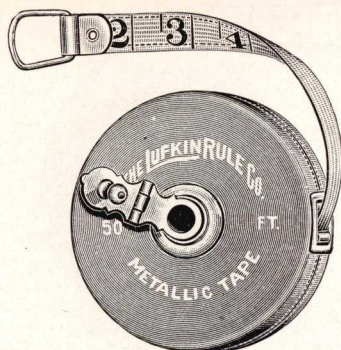
Number.....	600 $\frac{1}{2}$ ME	601ME	603ME	604ME	605 $\frac{1}{2}$ ME	606ME
Length, meters.....	5	10	15	20	25	30
Length, feet.....	15	33	50	66	82	100
Price, each.....	\$5.30	\$6.00	\$6.90	\$7.80	\$9.00	\$10.20

NOTES: Metric Only—"Metallic" Tapes so marked, prices same as feet and inches.

"Metallic" Tapes on Metal Reels—See page 71.

**Refills for Above "Metallic" Tapes. (Lines Only, without Cases.)**

For full listings of such Refills see page 68



## “Metallic” (Woven) Tapes With Folding Handle No. 500 Series. $\frac{5}{8}$ Inch Wide.

The Lufkin “Metallic” is the best of Woven Tapes. It is extensively used where it is impractical to employ a steel tape and where steel tape accuracy is not required. This tape we weave, coat and mark by the most approved methods known to insure satisfactory service.

The line is of linen with metallic warp. It has “Instantaneous” Readings (last preceding foot number repeated at each inch or each 10th of foot). Markings are clear and figures prominent. First end has leather reinforcement. The case is of brown, selected, genuine leather, closely hand-stitched, with plated steel liner and with substantial folding handle. Mountings nickel plated. Patent threader makes removal of an old and attaching of a new line most simple.

### Marked One Side Only

Feet, inches and half inches..No.	<b>500</b>	<b>501</b>	<b>503</b>	<b>504</b>	<b>505</b>	<b>506</b>	<b>507</b>
Feet, 10ths and half 10ths ft.No.	<b>500D</b>	<b>501D</b>	<b>503D</b>	<b>504D</b>	<b>505D</b>	<b>506D</b>	...
Length, feet.....	25	33	50	66	75	100	150
Weight each, ozs.....	9	11	15	18	21	24	41
Price, each.....	\$3.50	\$4.10	\$5.00	\$5.80	\$6.30	\$7.90	\$13.80

### Marked Links on Back

Feet and inches one side, links on back.....No.	<b>500L</b>	<b>501L</b>	<b>503L</b>	<b>504L</b>	<b>505L</b>	<b>506L</b>	
Feet and 10ths ft. one side, links on back.....No.	<b>500DL</b>	<b>501DL</b>	<b>503DL</b>	<b>504DL</b>	<b>505DL</b>	<b>506DL</b>	
Length, feet.....	25	33	50	66	75	100	
Price, each.....	\$3.70	\$4.30	\$5.30	\$6.10	\$6.70	\$8.50	

### Marked Metric and English

One Side Meters to Centimeters Throughout; Other Side Feet and Inches.

Number.....	<b>500<math>\frac{1}{2}</math>ME</b>	<b>501ME</b>	<b>503ME</b>	<b>504ME</b>	<b>505<math>\frac{1}{2}</math>ME</b>	<b>506ME</b>	<b>507ME</b>
Length, meters.....	5	10	15	20	25	30	50
Length, feet....	15	33	50	66	82	100	164
Price, each....	\$3.60	\$4.30	\$5.30	\$6.10	\$7.30	\$8.50	\$15.20

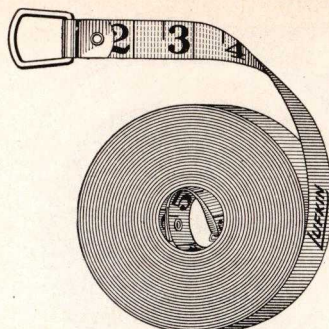
NOTES: Metric Only—“Metallic” Tapes so marked, prices same as feet and inches.

“Metallic” Tapes On Metal Reels—See page 71.

**Refills For Above “Metallic” Tapes. (Lines Only, without Cases.)**

For full listings of such refills see page 68.





## Refills for "Metallic" ( $\frac{5}{8}$ Inch Wide) Tapes (Lines Only, without Cases)

These are Tape Lines without Cases, and equipped with regular ring at first end, threader loop at last end. Our "Metallic" Tape Cases have Patent Threader attached to drum. (Threader is illustrated on page 65.) Inserting new line in case is easy: Simply unhook the old and hook on the new, removal of drum or case screw being unnecessary.

These "Metallic" Tape Refills have "Instantaneous" readings (last preceding foot number repeated at each inch or 10th of foot).

### Refills Listed Below Are for Nos. 600 and 500 "Metallic" Tapes, Pages 66 and 67

(Lines of Tapes of these two Series are identical)

#### Marked One Side Only

Feet, inches and half inches. No.	0500	0501	0503	0504	0505	0506	0507
Feet, 10ths and half 10ths ft. No.	0500D	0501D	0503D	0504D	0505D	0506D	.....
Length, feet.....	25	33	50	66	75	100	150
Weight each, ozs.....	4	5	7	8	9	12	18
Price, each.....	\$1.40	\$1.90	\$2.50	\$3.00	\$3.30	\$4.80	\$8.80

#### Marked Links on Back

Feet and inches one side, links on back.....No.	0500L	0501L	0503L	0504L	0505L	0506L
Feet and 10ths ft. one side, links on back.....No.	0500DL	0501DL	0503DL	0504DL	0505DL	0506DL
Length, feet.....	25	33	50	66	75	100
Price, each.....	\$1.60	\$2.10	\$2.80	\$3.40	\$3.70	\$5.30

#### Marked Metric and English

One Side Meters to Centimeters Throughout; Other Side Feet and Inches.

Number.....	0500 $\frac{1}{2}$ ME	0501ME	0503ME	0504ME	0505 $\frac{1}{2}$ ME	0506ME	0507ME
Length, meters...	5	10	15	20	25	30	50
Length, feet.....	15	33	50	66	82	100	164
Price, each.....	\$1.30	\$2.10	\$2.80	\$3.40	\$4.30	\$5.30	\$9.40

NOTE: Metric Only—"Metallic" Tape Refills so marked, prices same as feet and inches.



## "Junior Metallic" (Woven) Tapes

No. 660 Series.  $\frac{7}{16}$  Inch Wide.

A Compact, Woven Tape of the Highest Grade  
Most Convenient to Carry and Popular for Light Work

The "Junior" is a narrower, genuine "Metallic" line. Its weight with case is about half that of our  $\frac{5}{8}$  inch wide tapes.

Line of linen with metallic warp, clearly marked and with leather reinforcement at first end. Case of brown, selected, genuine leather, closely hand-stitched, and with plated steel liner. Folding flush handle is opened by pressing pin on opposite side. Mountings nickel plated. Patent threader makes removal of old and attaching of new line most simple.

*This tape is not made over 50 feet long.*

### Marked One Side Only

Feet, inches and 8ths of inches.....	No.	660	663
Feet, 10ths and 100ths of feet.....	No.	660D	663D
Length, feet.....		25	50
Weight each, ozs.....		6	9
Price, each.....		\$3.70	\$4.60

### Marked Metric and English

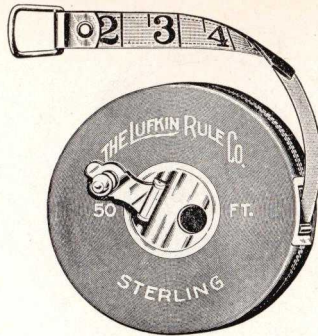
One Side Meters to Centimeters Throughout; Other Side Feet, Inches and 8ths.

Number.....	660 $\frac{1}{2}$ ME	661ME	663ME
Length, meters.....	5	10	15
Length, feet.....	15	33	50
Price, each.....	\$3.60	\$4.40	\$4.90

## Refills for "Junior Metallic" ( $\frac{7}{16}$ Inch Wide) Tapes (Lines Only, without Cases)

Feet, inches and 8ths, one side only.....	No.	0660	0663	
Feet, 10ths and 100ths ft., one side only.....	No.	0660D	0663D	
Length, feet.....		25	50	
Weight each, ozs.....		2	4	
Price, each.....		\$1.40	\$2.30	
Metric and English.....	No.	0660½ME	0661ME	0663ME
Length, meters.....		5	10	15
Length, feet.....		15	33	50
Price, each.....		\$1.20	\$1.90	\$2.50





## “Sterling” Linen Tapes

No. 400 Series.  $\frac{5}{8}$  Inch Wide.

Popular with Telephone, Telegraph and Other Utility Companies,  
for Ordinary Work

This line, in general appearance similar to the “Metallic,” is without the metallic warp. While no woven tape should be depended upon for the closest degree of accuracy, the “Sterling” is strictly a quality article, well made from the best of materials, and is serviceable.

Linen line with leather reinforcement first end. Has clear markings and prominent figures, also “Instantaneous” Readings (last preceding foot number repeated at each inch). Case of brown, selected, genuine leather, closely hand-stitched, has plated steel liner and folding flush handle. Mountings nickel plated. Patent threader makes removal of old and attaching of new line most simple.

### Marked One Side Only

Feet, inches & half inches No.	400	403	405	406	407
Length, feet.....	25	50	75	100	150
Weight each, ozs.....	8	12	19	24	40
Price, each.....	\$3.40	\$4.50	\$5.80	\$6.80	\$12.30

### Marked Metric and English

One Side Meters to Centimeters Throughout; Other Side Feet and Inches.

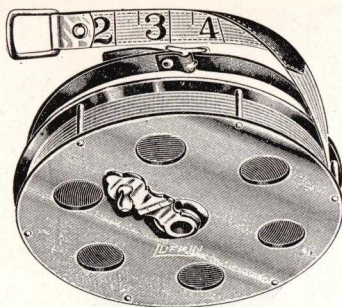
Number.....	400 $\frac{1}{2}$ ME	403ME	405 $\frac{1}{2}$ ME	406ME	407ME
Length, meters.....	5	15	25	30	50
Length, feet.....	15	50	82	100	164
Price, each.....	\$3.50	\$4.70	\$6.70	\$7.50	\$13.70

### Refills for “Sterling” Tapes. (Lines Only, without Cases)

Marked ft. & ins., one side No.	0400	0403	0405	0406	0407
Length, feet.....	25	50	75	100	150
Weight each, ozs.....	3	6	8	11	17
Price, each.....	\$1.30	\$2.30	\$3.00	\$4.30	\$8.20

Marked Metric & English No.	0400 $\frac{1}{2}$ ME	0403ME	0405 $\frac{1}{2}$ ME	0406ME	0407ME
Length, meters.....	5	15	25	30	50
Length, feet.....	15	50	82	100	164
Price, each.....	\$1.20	\$2.70	\$4.00	\$4.90	\$8.90

NOTE: Metric Only—“Sterling” Tapes so marked, prices same as feet and inches.  
“Sterling” Tapes on Metal Reels—See page 71.



## Linen Tapes on Metal Reels

Used by Pole Line and Construction Crews of Utility Companies, etc.

High grade linen line, non-metallic,  $\frac{5}{8}$  inch wide, same as our popular "Sterling." Clear markings, prominent figures. Leather reinforcement first end.

Substantial, perforated disk reel of metal, heavily nickel plated. Reel being perforated is an aid in clearing tape of dirt accumulation and in drying it out. Sturdy folding winding handle gives good leverage and adjustable strap handle affords firm hold. Patent threader makes removal of old and attaching of a new line most simple.

### With Five-Eighths Inch Linen Tape Line

#### Marked Feet, Inches and Half Inches, One Side Only

Number	Length		Weight, Each	Price, Each
<b>1406</b>	100 foot	Tape Complete with Reel	2 $\frac{1}{4}$ lbs.	\$12.90
<b>1407</b>	150 foot	Tape Complete with Reel	3 $\frac{1}{2}$ lbs.	16.80
<b>01406</b>	100 foot	Tape Line Only, without Reel	$\frac{3}{4}$ lb.	4.30
<b>01407</b>	150 foot	Tape Line Only, without Reel	1 $\frac{1}{8}$ lbs.	8.20

#### Marked Metric and English

<b>1407ME</b>	50 meter (164 ft.)	Tape Complete with Reel	4 lbs.	\$18.20
<b>01407ME</b>	50 meter (164 ft.)	Tape Line Only, without Reel	1 $\frac{1}{4}$ lbs.	8.90

## "Metallic" (Woven) Tapes on Metal Reels

This is our standard "Metallic" Tape Line on open metal reel (illustrated above), which assembly is best for some classes of work.

Line is  $\frac{5}{8}$  inch wide, of linen, with metallic warp. It has clear markings and prominent figures. First end has leather reinforcement.

Substantial, perforated disk reel of metal, nickel plated. Reel being perforated is an aid in clearing tape of dirt accumulation and in drying it out. Sturdy folding winding handle gives good leverage and adjustable strap handle affords firm hold. Patent threader makes removal of old and attaching of a new line most simple.

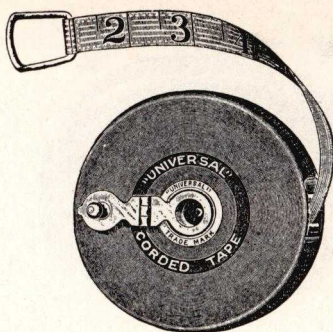
### With Five-Eighths Inch "Metallic" Tape Line

#### Marked Feet, Inches and Half Inches, One Side Only

Number	Length		Weight, Each	Price, Each
<b>1506</b>	100 foot	Tape Complete with Reel	2 $\frac{1}{4}$ lbs.	\$13.40
<b>1507</b>	150 foot	Tape Complete with Reel	3 $\frac{1}{2}$ lbs.	17.50
<b>01506</b>	100 foot	Tape Line Only, without Reel	$\frac{3}{4}$ lb.	4.80
<b>01507</b>	150 foot	Tape Line Only, without Reel	1 $\frac{1}{8}$ lbs.	8.80

NOTE: "Metallic" and "Sterling" Tapes in Leather Cases—See pages 66, 67 and 70.





## **“Universal” (Linen Corded) Tapes**

**With Genuine Leather Cases**

**No. 940 Series.  $\frac{5}{8}$  Inch Wide**

For those who wish a medium priced yet good woven line in leather case.

Line is extra durable because it is corded with pure, unbleached linen and is  $\frac{5}{8}$  inch wide. This width also permits of large and prominent figures. This tape is well coated in yellow and clearly marked. Case is of brown, genuine leather, hand-stitched, and has metal liner. Brass folding handle and mountings.

### **Marked Feet, Inches and Half Inches, One Side Only**

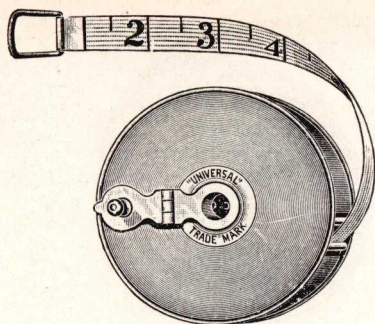
Number.....	940	943	945	946
Length, feet.....	25	50	75	100
Weight per doz., lbs.....	5 $\frac{1}{4}$	6 $\frac{3}{4}$	9 $\frac{1}{4}$	11
Price, per doz.....	\$22.30	\$29.70	\$33.70	\$37.10

### **Marked Metric and English**

One Side Meters to Centimeters Throughout; Other Side Feet and Inches.

Number.....	941ME	943ME	945 $\frac{1}{2}$ ME	946ME
Length, meters.....	10	15	25	30
Length, feet.....	33	50	82	100
Price, per doz.....	\$26.30	\$32.70	\$39.60	\$42.60

Packing: One in a box,  $\frac{1}{2}$  dozen in a carton



## "Universal" (Linen Corded) Tapes

With Enameled Metal Cases

No. 730 Series. 1 1/2 Inch Wide

Widely Known as the "Railroad Tape," Particularly No. 733R  
An Inexpensive Yet Strong Tape, Affording a Very  
Fair Degree of Accuracy for a Woven Line

Recommended for any rough measuring and is rapidly displacing the ordinary cotton tape.

The line is extra durable, being corded with pure unbleached linen, and well coated in yellow. It is clearly marked. Sheet steel case with sides maroon enameled, and with brass edge band. Brass folding handle and mountings.

These tapes are packed in individual boxes, half dozen in a carton, protecting and keeping them in best condition and most salable.

### Railroad Tape. (Reinforced)

This tape is an extra value and is standard equipment of many railroads for common maintenance work. It is same as No. 733 but with first three feet of the line doubled and stitched. This prolongs its life, the first end of tape receiving by far the most wear.

No. 733R 50 ft. Railroad Tape (Reinforced)

Feet, Inches and Quarter Inches, One Side Only

Weight per doz.....4 1/2 lbs.  
Price, per doz.....\$13.90

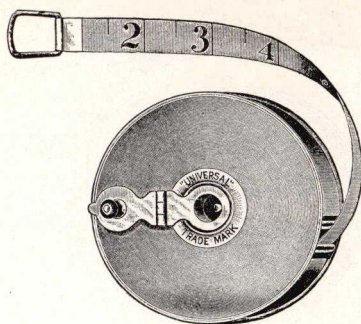
### Marked Feet, Inches and Quarter Inches, One Side Only

Number.....	730	731	733	734	735	736
Length, feet.....	25	33	50	66	75	100
Weight per doz., lbs.....	2 3/4	3 1/2	4 1/4	5 1/2	6	7
Price, per doz.....	\$7.50	\$8.40	\$11.90	\$13.40	\$14.90	\$18.40

Packing: All tapes on this page, one in a box, 1/2 doz. in a carton

NOTE: Linen Corded Tapes, 5/8 Inch Wide, in Leather Cases—See page 72.





## Ass Skin Tapes

### No. 710 Series. $\frac{1}{2}$ Inch Wide

A Long Woven Tape, Low in Price  
Used by Laborers on Common Maintenance Work

The Lufkin Ass Skin Tape is extensively used because it is low in price yet a good tape of its kind. It is built only for such ordinary work as requires but a fair degree of accuracy. It would be found convenient in every home, and especially handy about the farm where measurements longer than practical to take with a rule are often to be determined.

Cotton line, coated yellow, clearly marked. Sheet steel case with sides cream enameled, and with brass edge band. Brass folding handle and mountings.

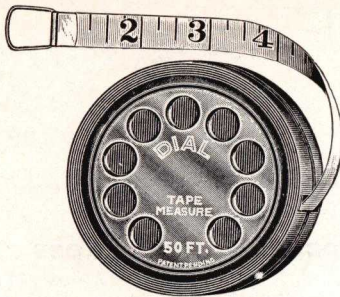
We emphasize that these tapes are packed in individual boxes,  $\frac{1}{2}$  dozen in a carton, protecting and keeping them in best condition and most salable.

#### Marked Feet, Inches and Quarter Inches, One Side Only

Number.....	710	711	713	714	715	716
Length, feet.....	25	33	50	66	75	100
Weight per doz., lbs.....	$2\frac{3}{4}$	$3\frac{1}{4}$	4	$5\frac{1}{4}$	$5\frac{3}{4}$	7
Price, per doz.....	\$5.40	\$5.90	\$7.10	\$8.90	\$10.70	\$14.20

Packing: One in a box,  $\frac{1}{2}$  doz. in a carton

NOTE: Linen Corded Tape in Metal Case—See page 73.



## "Dial" Cotton Tape

(PATENTED)

This is our lowest priced 50-foot tape, yet is suitable for many kinds of common work and will give a fair amount of service. Being popular priced and 50 feet long it would prove handy on any farm and in many homes and appeals to many who have but occasional measuring to do.

Its novel feature is the winding mechanism in the form of a telephone dial. This dial revolves, and with finger tip inserted in any one of the nine holes, the line is quickly and easily wound into the case.

Metal case fully encloses the line. It is green enameled and has nickel plated mountings. The  $\frac{1}{2}$  inch wide cotton line, woven to width, is coated light green and clearly marked in black and red.

### Marked Feet, Inches and Quarter Inches, One Side Only

No. D-03 "Dial" Cotton Tape. Length: 50 ft. Price, per doz. \$4.20  
Wt. per doz.,  $3\frac{1}{4}$  lbs. Packing: One doz. in display box

## "Dial" Linen Corded Tape

(PATENTED)

This popular priced linen corded tape is suitable for measuring requiring but a fair degree of accuracy and will give a reasonable amount of service. Being 50 feet long it will fill a real want on many farms and in many homes.

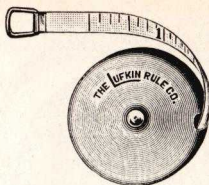
Winding mechanism in the design of a telephone dial is the novel feature. This dial revolves, and with finger tip inserted in any one of the holes, the line is quickly and easily wound into the case. The metal case is maroon enameled and the dial and other mountings are solid brass, making a most attractive combination. Case fully encloses the line.

Line of this 50 foot tape is very serviceable, being linen corded. It is  $\frac{1}{2}$  inch wide, well coated in yellow and clearly marked in black and red.

### Marked Feet, Inches and Quarter Inches, One Side Only

No. D-53 "Dial" Linen Corded Tape. Length: 50 feet. Price, per doz. \$6.70  
Wt. per doz.,  $3\frac{1}{2}$  lbs. Packing: One in a box,  $\frac{1}{2}$  doz. in a carton





## Pocket Linen Tapes

The Pocket Linen Tapes listed below are our best grade, corresponding in construction with our No. 143 series steel tapes. These are a pocket tape for work on which it is impractical to use a steel tape. Their sale is not limited to hardware stores. They appeal also to the ladies, being much neater than common dressmakers tapes for sewing basket or cabinet. Therefore they are handled also by department stores and novelty shops. They are tissue wrapped and packed in individual boxes.

These lines are of enameled linen, clearly marked. In our own factories they are woven to width, with selvage, hence will not fray at edges. Cases are compact, well built and heavily nickel plated. They have rounded corners and fine appearance. Spring-wind with center push button and ratchet stop.

### With One-Quarter Inch Linen Tape Line

#### Marked Inches to 8ths, One Side Only

Number.....	173	175	176
Length, inches.....	36	60	72
Weight per doz., lbs....	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$
Price, per doz.....	\$7.20	\$9.00	\$10.20

#### Marked Inches to 8ths One Side; Millimeters Other Side

Number.....	173EM	175EM	176EM
Length.....	36 inch (1 meter)	60 inch (1 $\frac{1}{2}$ meter)	72 inch (2 meter)
Price, per doz.....	\$8.00	\$9.40	\$10.70

### With Five-Sixteenths Inch Linen Tape Line

#### Marked One Side Only

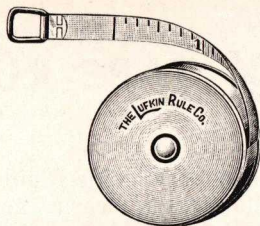
Inches to 8ths	No. 188	96 inch	Wt., doz. 2 $\frac{3}{8}$ lbs.	Per doz. \$18.00
Feet, inches and 8ths	No. 188F	8 feet	Wt., doz. 2 $\frac{3}{8}$ lbs.	Per doz. 18.00

Packing: All packed one in a box,  $\frac{1}{2}$  doz. in a carton

NOTES: Corresponding Pocket Steel Tapes—See page 58.

Tailors and Dressmakers Tapes—See page 126.

## "Marvel" Pocket Linen Tapes



Popular priced Linen Pocket Tapes, a good medium grade article. This is a companion line to "Marvel" Pocket Steel Tapes shown page 59. These tapes also sell in quantities through department stores, novelty shops and bazaars, as well as hardware stores.

One-quarter inch wide, enameled linen tapes, woven to width, with selvage, so they will not fray out. Square-edge, nickel plated cases, spring-wind with center push button and ratchet stop.

### With One-Quarter Inch Linen Tape Line

#### Marked Inches to 8ths, One Side Only

Number.....	3173	3175	3176
Length, inches.....	36	60	72
Weight per doz., lbs....	$\frac{3}{4}$	1	1
Price, per doz.....	\$4.60	\$5.60	\$6.60

#### Marked Inches to 8ths One Side; Millimeters Other Side

Number.....	3173EM	3175EM	3176EM
Length.....	36 inch (1 meter)	60 inch (1½ meter)	72 inch (2 meter)
Price, per doz.....	\$5.30	\$6.60	\$7.30

Packing: ½ dozen in a box

NOTE: "Marvel" Pocket Steel Tapes—See page 59.



## "Universal"

## Pocket Tape

Our lowest priced tape in case. Sold by dry goods, department and general stores, novelty shops and bazaars, as well as hardware stores. Sixty inch cotton line, yellow coated, ¼ inch wide. Woven to width, with selvage, so will not fray out. Square-edge, nickel plated case, spring-wind with center push button and ratchet stop.

Packed in very attractive colored display boxes of one dozen. This box sits inclined, showing the goods to best advantage on counter, in show case or window.

One gross tapes (12 display boxes) per carton.

#### Marked Inches to 8ths, One Side Only

No. 165      Length, 60 inch.      Weight per gross, 9 lbs.      Price, per gross \$24.50

NOTE: Can be supplied marked metric and English, at small additional cost. Specify as "No. 165EM."



## Section Three

# **LUFKIN** TAPE-RULES

**LUFKIN** has given to its line of Flexible-Rigid Measures the appropriate name "Tape-Rules." This type of measure has, in the last few years, become universally popular and is now in widespread use on all short measuring work. This is because Tape-Rules are the first practical combination of tape and rule. They can be projected unsupported to walls, ceilings, across and into openings, etc., yet will also flex to measure circles, odd shapes, around angles, etc. In all this they afford the accuracy of a steel tape. They are convenient to carry, like a pocket tape.

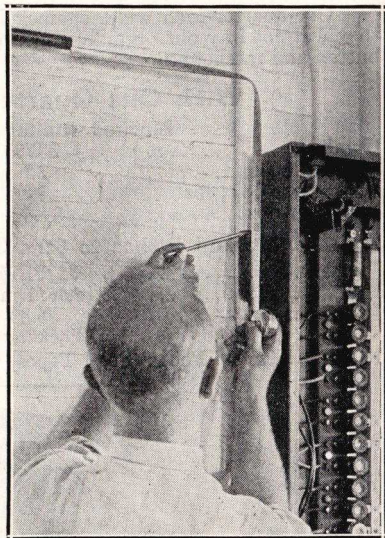
The graduated blades of our Tape-Rules are of superior quality steel and are nickel plated, rust resisting. All lines and figures are dark and clear, easy to read. The action is always safe, for the blades do not eject themselves from case and are at all times under instant and full control.

Cases of all our Tape-Rules fully enclose the blade. This is important, for it excludes grit and lint both when in pocket and in use, so the measure will continue to operate smoothly. Through superior case construction our blades have perfect balance, therefore they remain set at any distance withdrawn, do not spring back into case.

Also for advertising uses Tape-Rules are ideal, because they are novel, universally useful, convenient to carry and not expensive. In quantities from fifty upward, we can furnish various of our Tape-Rules bearing customers advertisement on case in an attractive and permanent manner. Illustration page 249. Prices quoted on request.

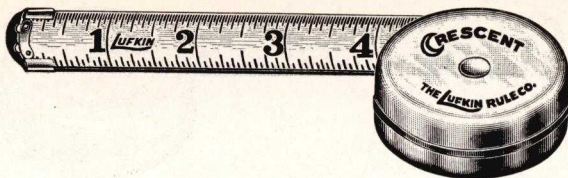
The sales possibilities of Tape-Rules become apparent on considering how many people do measuring that has called for either a folding rule or a pocket tape. This means every mechanic and many thousands of others in all walks of life. Also there are those who have not carried a rule but will a Tape-Rule, as it is vest pocket size.

All of our brands, "Crescent," "Crescent Junior," "Aristocrat," "Wizard," "Wizard Junior," etc. are registered in U. S. and other patent offices. Each type is recognized as the most practical in its class.



Measuring straight and around bend for electrical conduit





## CRESCENT Tape-Rules

(PATENTED)

Automatic Wind.  $\frac{5}{8}$  Inch Wide Blade

The Accuracy and Convenience of a Pocket Steel Tape

The Utility of Both a Rule and a Tape

A 6-foot Tape-Rule that is sturdy and suitable for steady use. Popular in the building trades, industrial plants and many other fields.

Steel blade is stiffened by concave forming, so it can be projected unsupported, like a rule, to walls, ceilings, or into openings. Yet it will also flex to accurately measure circles and odd shapes. Blade is nickel plated and markings are prominent and dark in sharp contrast, hence easy to read.

Metal case is of good weight and construction, well finished and nickel plated. It fully encloses the blade, is but two inches in diameter, and has rounded edges. Spring-winding action is positive and smooth-working. Blade is manually withdrawn; ratchet stop holds it at any length withdrawn; and it is automatically returned to case by pressing center push button. It is always under complete control. Case is ribbed on edge at bottom so it will stand on edge, enabling blade to lie flat on the work.

Sliding end hook (patented) is one of the distinctive features of the "Crescent." This hook automatically adjusts itself to accurately take either butt end or hook measurement. Hook pushed back serves as a gage, indicating and holding the measurement. With hook pushed back, blade may be inserted in a narrower opening than hook would enter.

### Markings, One Side Only

No.	Length		Price, Each
696	72 inch	Inches to 16ths, both edges. (First 6 inches upper edge to 32nds).....	\$2.50
696D	6 foot	Feet, 10ths and 100ths of feet upper edge. Feet, inches and 16ths lower edge.....	2.75
696EM	78 $\frac{3}{4}$ inch (2 meters)	Millimeters on upper edge. Inches to 16ths lower edge.....	2.75

Weight per doz.,  $4\frac{1}{2}$  lbs.

Packing: One in a box, six in a carton

NOTE: "All Stainless Crescent"—See page 80.





## “All Stainless” CRESCENT Tape-Rules

(PATENTED)

**Automatic Wind.  $\frac{5}{8}$  Inch Wide Blade**

**Rust-Proof Blade and Case**

**The Accuracy and Convenience of a Pocket Steel Tape**

**The Utility of Both a Rule and a Tape**

A 6-foot Tape-Rule exactly same as the “Crescent” except having both blade and case made of genuine Stainless Steel, rust-proof and non-corrosive. Suitable for general use, most valuable where rust and corrosion cause much trouble.

Stainless Steel blade is stiffened by concave forming, so it can be projected unsupported, like a rule. It will also flex to accurately measure circles and odd shapes. Markings are prominent and dark in sharp contrast to the metal background, easy to read.

Stainless Steel case is of good weight, well built and nicely finished. It fully encloses the blade, has rounded edges, and is but two inches in diameter. Spring-winding action is positive and smooth. Blade is manually withdrawn; ratchet stop holds it at any length withdrawn; and it is automatically returned by pressing center push button. Thus it is always under full control. Case is ribbed on edge at bottom so it will stand on edge, enabling blade to lie flat on the work.

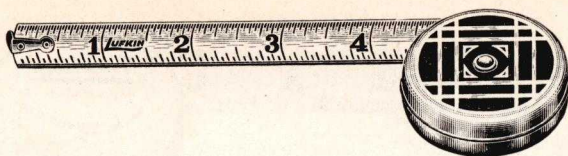
Sliding end hook (patented) is one of the distinctive features of this tape-rule. Hook automatically adjusts itself, so either butt end or hook measurements are accurately taken. Hook pushed back serves as a gage, indicating and holding the measurement. With hook pushed back, blade may be inserted in a narrower channel than hook would enter.

### Markings, One Side Only

No.	Length		Price, Each
S-696	72 inch	Inches to 16ths, both edges. (First 6 inches upper edge to 32nds).....	\$3.00
S-696D	6 foot	Feet, 10ths and 100ths of feet upper edge. Feet, inches and 16ths on lower edge.....	3.25

Weight per doz.,  $4\frac{1}{2}$  lbs. Packing: One in a box, six in a carton

NOTE: “Crescent” Tape-Rules (not stainless)—See page 79.



## “Aristocrat” Tape-Rules

(PATENTED)

**Manually Operated.  $\frac{7}{16}$  Inch Wide Blade**

**A Combination of Unusual Beauty and Utility**

Compact and most attractive, finest of vest pocket Tape-Rules, yet a very practical 6-foot measure. Has the flexible and rigid features, both so handy in measuring, yet weighs only two ounces and diameter of case is but  $1\frac{5}{8}$  inches. The “Aristocrat” is suitable for general use, but also strongly appeals to executives, salesmen, engineers, architects and many others, and makes an ideal gift for any man.

Steel blade is stiffened by concave forming, so it can be projected unsupported, like a rule. Yet it will also flex, like a pocket steel tape, to accurately measure circles and odd shapes. Blade is nickel plated and markings are clear and dark, in sharp contrast, hence easy to read. Blade is manually withdrawn and returned to case. It operates smoothly and because of superior case construction is perfectly balanced so it remains set at any length withdrawn, will not spring back into case. Solid hook at first end is ideal for measuring either within or beyond arms reach. Accurate butt end measurement can be taken from shoulders of blade.

Compact and very neat case is of genuine Stainless Steel. It has, on both sides, embossed design with background in black enamel, giving the “Aristocrat” the appearance its name implies. Packed in handsome, black and silver, individual box, transparent covered, and sealed.

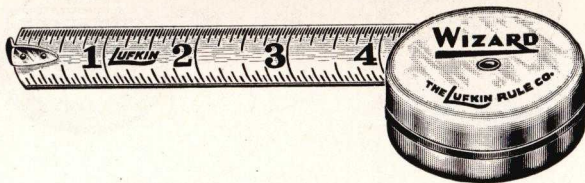
### Markings, One Side Only

No.	Length		Price, Each
186	72 inch	Inches to 16ths, both edges. (First 6 inches upper edge to 32nds).....	\$1.50
186D	6 foot	Feet, 10ths and 100ths of feet upper edge. Feet, inches and 16ths on lower edge.....	1.75
186EM	78 $\frac{3}{4}$ inch (2 meters)	Millimeters on upper edge. Inches to 16ths lower edge.....	1.75

Weight per doz., 2 lbs.

Packing: One in a transparent covered box, three in a white carton  
(Boxes are suitable also for individual display.)





## WIZARD Tape-Rules

(PATENTED)

### Manually Operated. $\frac{5}{8}$ Inch Wide Blade

A medium priced Tape-Rule that will give satisfactory service in steady use and has appeal to mechanics and many others.

Standard thickness steel blade stiffened by concave forming can be projected unsupported, like a rule, to walls, ceilings, or into openings. It will also flex to closely measure circles, around corners, etc. Blade is nickel plated and the prominent dark lines and figures are in sharp contrast, easy to read. Blade is manually withdrawn and returned to case. It operates smoothly, and because of superior case construction is perfectly balanced so it remains set at any length withdrawn, will not spring back into case. Solid hook at first end is very handy for measuring within or beyond arms reach. Accurate butt end measurement can be taken from the shoulders of the blade.

Sturdy metal case is nickel plated. It fully encloses the blade, thus excludes dirt. It will stand on edge so blade lies flat on work. Diameter of 6-foot case is two inches.

#### Markings, One Side Only

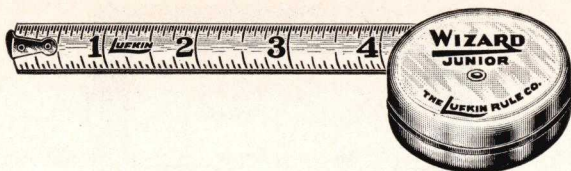
No.	Length		Price, Each
686	72 inch	Inches to 16ths, both edges. (First 6 inches upper edge to 32nds).....	\$1.00
688	96 inch	Inches to 16ths, both edges. (First 6 inches upper edge to 32nds).....	1.50
686D	6 foot	Feet, 10ths and 100ths of feet upper edge. Feet, inches and 16ths on lower edge.....	1.25
686EM	78 $\frac{3}{4}$ inch (2 meters)	Millimeters on upper edge. Inches to 16ths lower edge.....	1.25

Weight per doz.: 6 ft., 3 lbs.

8 ft., 3 $\frac{1}{2}$  lbs.

Packing: No. 686, one in a box, six in a carton

NOTE: "Wizard Junior" Tape-Rule—See page 83.



## WIZARD Junior Tape-Rules

(Patented)

**Manually Operated. 1/2 Inch Wide Blade**

A smaller, popular priced Tape-Rule of same pattern as the "Wizard." This is convenient pocket size, and the 6-foot weighs complete but 2 1/2 ounces.

Nickel plated steel blade has dark markings in sharp contrast, easy to read. It is stiffened by concave forming so it can be projected unsupported, like a rule. It will also flex to closely measure circles, around corners, etc. Blade is manually withdrawn and returned. It runs smoothly and by superior case construction is perfectly balanced so it remains set at any length withdrawn. Solid hook is handy for measuring within or beyond arms reach. Accurate butt end measurement is taken from shoulder of the blade.

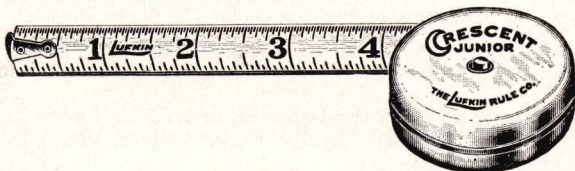
Substantial nickel plated case fully encloses the blade, excluding dirt. Case is approximately 2 inches in diameter and has rounded corners. It is ribbed at bottom so it will stand on edge, enabling blade to lie flat on the work.

**Marked One Side Inches to 16ths, Both Edges**

(First 6 inches upper edge to 32nds)

No. 1686	"Wizard Junior."	Length: 72 inch.	Price, per doz. \$ 9.00
No. 1688	"Wizard Junior."	Length: 96 inch.	Price, per doz. 15.00

Wt. per doz.: 72-inch, 2 1/4 lbs.; 96-inch, 2 1/2 lbs. Packing: One in a box, six in a carton



## CRESCENT Junior Tape-Rule

(Patented)

**Automatic Wind. 1/2 Inch Wide Blade**

Made for those who wish a Tape-Rule of small size, yet spring-wind.

Nickel plated steel blade has dark markings, easy to read, and has the flexible and rigid features, both so handy in measuring. It has solid end hook.

Sturdy, nickel plated case with rounded corners, has edge ribbed at bottom so it will stand on edge. Case diameter is approximately two inches. Positive and smooth spring-wind action, with ratchet stop and center push button.

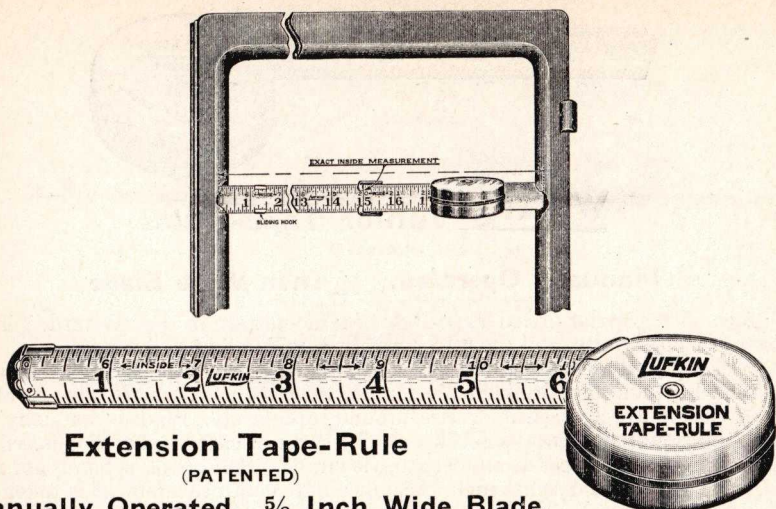
**Marked One Side Inches to 16ths, Both Edges**

(First 6 inches upper edge to 32nds)

No. 1696	"Crescent Junior."	Length: 72 inch.	Price, each \$1.50
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Weight per doz.: 2 1/4 lbs. Packing: One in a box, six in a carton





## Extension Tape-Rule

(PATENTED)

**Manually Operated.  $\frac{5}{8}$  Inch Wide Blade.**

**FOR INSIDE MEASURING. FOR ALL OTHER COMMON MEASURING.**

A 6-foot Tape-Rule suitable for standard measuring and also for taking exact inside measurements of door and window openings, etc. For inside measuring it has, in addition to graduated blade, an extension blade of same steel. Unlike any other Tape-Rule, this one accurately takes inside measure even when both limits of the space are at bottom of a groove or a channel. Example: Bottoms of the two channels which determine size of automobile glass. Both blades remain set at length withdrawn, will not fly back into case, do not require locking mechanism. Point of reading is always in a position easy to read.

Blade nickel plated, markings black and prominent, easy to read. Blade stiffened by concave forming, can be projected unsupported like a rule to ceilings, across openings, etc. It will also flex to properly measure circles, etc. Sturdy case, nickel plated, fully encloses blades, excludes dirt. Case has rounded edges and is two inches in diameter. It is ribbed on edge at bottom, so will stand on edge, enabling blade to lie flat on the work. No. X-686 has sliding hook, so blade can be inserted in a narrower slot than hook would enter. This hook automatically adjusts itself so that distance is accurately taken when hook is placed over the object being measured, yet when blade is butted against any object zero point falls at extreme outer end.

**In Common Measuring Read the Large Figures Along Lower Edge of Blade  
In Inside Measuring Read the Smaller Figures Along Upper Edge of Blade**

### To take an inside measurement:

Grip edges of overlay buckle at outer edges of case and withdraw from case until automatic stop is reached (about 4 inches).

Slide extension blade back to the right any convenient short distance and butt its right end squarely against side of opening being measured.

Pull graduated blade to the left until it butts against other side of opening being measured.

The overlay buckle or gage then indicates and holds the exact inside measurement, reading being taken at upper edge of blade.

(This edge has the smaller inch figures and is clearly marked throughout the length of the blade "inside" measure.)

### To recoil in case:

Pull extension blade to left to automatic stop.

Depress its last end and then push this blade back into case, manually operating graduated blade into case in usual manner.

### **Marked One Side, Inches to 16ths, Both Edges**

Numbered lower edge for ordinary measuring, upper edge for inside measuring.

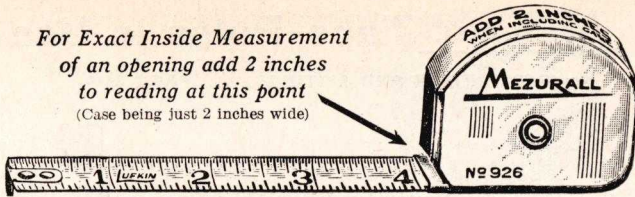
No. X-686 Extension Tape-Rule.

Length, 72 inch.

Price, each \$2.00

Wt., doz.  $3\frac{1}{2}$  lbs. Packing: One in a box, with directions for use





## **MEZURALL Tape-Rules** (PATENTED)

### **Manually Operated. 1/2 Inch Wide Blade**

**Most Practical and Compact All-Purpose Tape-Rule  
For Inside and Outside, also Height and Depth Measuring**

The "Mezurall" is a popular priced 6-foot Tape-Rule, most simple and positive in operation, accurate and suitable alike for:

- Standard, i.e., common measuring.
- Inside measuring of door and window openings, etc.
- Gaging or measuring of height or depth.

End hook has short sliding action, so automatically adjusts itself to give accurate result when hooked over any object (as handy in common measuring), and when blade is projected against any surface (as in taking an inside or any other butt end measurement). The case has three flat edges, so will stand unsupported in three measuring positions, i.e., with blade projected horizontally, or upward or downward.

#### To take an inside measurement:

- Butt square back edge of case against one side of opening being measured.
- Extend the blade to the other limit.
- Add 2 inches to the reading clearly indicated at the square opening of the case, as illustrated (case being 2 inches wide).
- (This instruction is clearly stamped on the case itself.)

The "Mezurall" is very compact and light weight. It weighs but 3 ounces, and case is but  $\frac{9}{16}$  inch thick and its greatest width 2 inches. The case is nickel plated, has rounded corners and is well finished. It fully encloses the blade.

The blade is nickel plated and has dark and prominent markings, easy to read. It is stiffened by concave forming, so can be projected unsupported, like a rule, to walls, ceilings, across openings, etc., yet will also flex to properly measure circles and odd shapes. The blade is manually withdrawn and returned to case, runs smoothly and remains set at any length withdrawn, does not spring back into case.

#### **Markings**

No.	Length		Price, Each
926	72 inch	Blade Marked One Side, both edges, inches to 16ths. (First 6 inches upper edge to 32nds).....	\$1.00
926B	72 inch	Blade Marked Both Sides, both edges, inches to 16ths. (First 6 inches upper edges to 32nds).....	1.25

Weight per doz., 21½ lbs.

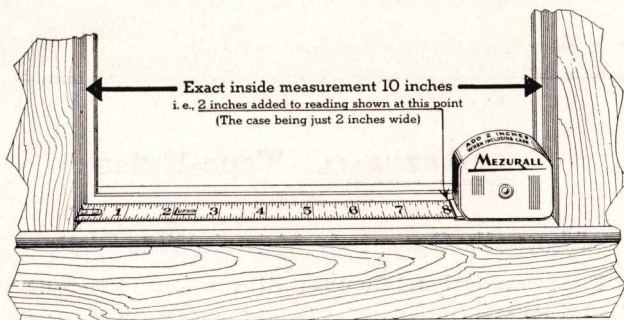
Packing: One in a box, six in a carton.

*See Over for Further Illustrations.*

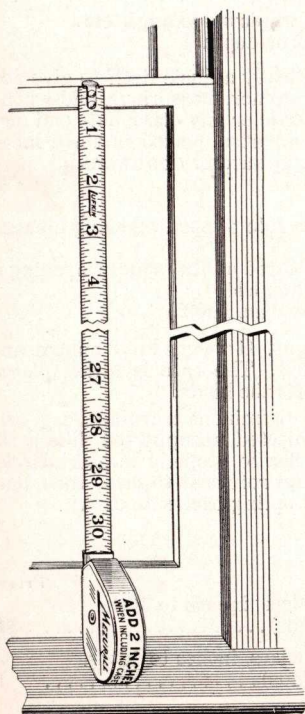


# MEZURALL Tape-Rules in Use

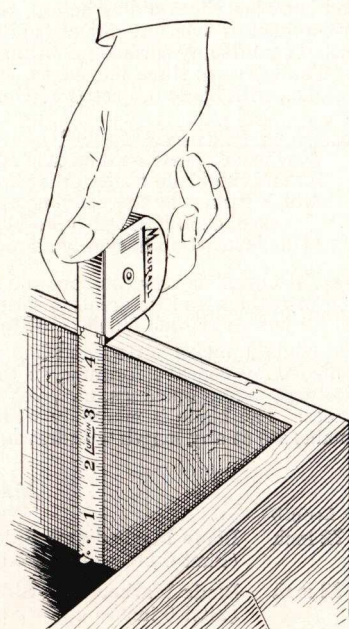
(DESCRIPTION AND LISTINGS.....PAGE 84-A)



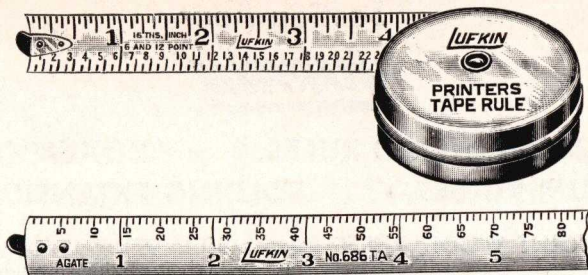
Self-adjusting hook permits accurate, butt end, inside measurement of opening. Blade stands at any length withdrawn.



An accurate measurement using hook. Exact distance from top of window sash to top of sill, 32½ inches, i. e., 2 inches added to measurement shown at reading point.



Self-adjusting hook permits accurate measurement of drawer depth. Blade marked both sides (No. 926B) is very convenient in many kinds of measuring.



## Printers Tape-Rules

(PATENTED)

### Manually Operated. $\frac{5}{8}$ Inch Wide Blade

Carry Inches, Agate, Pica and Nonpareil

These Flexible-Rigid Steel Tape-Rules serve more purposes than any other measure ever designed for printers, advertising men, etc. The 72 inch steel blade is stiffened by concave forming so it can be projected unsupported like a rule yet it will also flex to accurately measure cylindrical forms, around corners and other irregular spaces.

These Tape-Rules carry, in addition to 72 standard inches to 16ths, pica and nonpareil measurement up to  $433\frac{1}{2}$  picas, and agate measure up to 36 inches or 504 agate lines. Therefore they are ideal for the many uses of the printer, the compositor, pressmen, bindery workers, printing and paper salesmen, advertising and newspaper men and many others. They show the variation between six picas and a standard inch, which is  $\frac{4}{1000}$ ths inch. They are handy not only for measuring type and forms, books, borders and printing space, but, being 72 inches long, are suitable also for squaring cylinder forms, measuring paper stock, etc. Over common type rules or gages they have this further advantage, they coil into case but two inches in diameter and so can conveniently be carried in vest pocket.

Blade is nickel plated and has prominent dark lines and figures, easy to read. It has solid hook first end, very handy when measuring type, etc., and almost indispensable when measuring beyond arms reach. Sturdy metal case is nickel plated, and fully encloses the blade, thus excludes dirt. Blade operates smoothly in and out of case and because of balanced case construction, remains set at any length withdrawn, does not spring back into case.

#### Length: 72 Inches

- No. 686T** Marked concave side, upper edge 72 inches to 16ths, lower edge 6 and 12-point type measure, i.e., nonpareil and pica, up to  $433\frac{1}{2}$  picas ..... Each \$1.50
- No. 686TA** Marked convex side 36 inches to inches, and agate measure to 504 agate lines (14 lines to the inch).  
Marked concave side same as No. 686T, 72 inches to 16ths, pica and nonpareil ..... Each \$1.70

Packing: One in a box

NOTE: Spring-Wind Steel Tapes with Type Measure—See page 60.



## Section Four

# LUFKIN

### SPRING JOINT WOOD RULES.

### BOXWOOD RULES.

### ALUMINUM RULES.

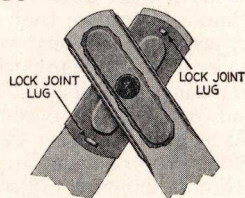
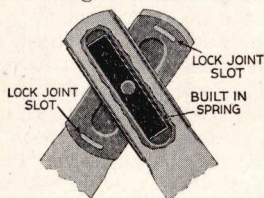
### FOLDING EXTENSION RULES.

**S**PRING JOINT WOOD RULES (pages 88 to 97) are, of all rules, most extensively used. Those with "Rivet Joint" have rivet passing through the wood and through both joint plates: "Concealed Joint" Rules have rivet but it is not visible. All have securely fastened metal cap at each end.

"Red End" Rules are outstanding, the very best. They have solid brass, rust-proof, smooth-working joints, also brass strike plates, and are superior as well in finish and appearance. The "Two Way—Red End" is, in numbering also, unlike any other rule.

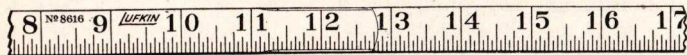
Folding End Hook is a patented feature of much value, supplied on our Spring Joint Rules, as listed. It is illustrated next page.

Lock Joints, illustrated below, are a patented feature on our Spring Joint Wood Rules, and a most valuable one. They are in addition to the regular large socket lengthwise of each spring plate. Lock Joint consists of each joint having in one spring plate two cut-out crosswise slots, one at each end, and the other plate fitting to it having projections or lugs which snap and closely fit into these slots. Lock Joints guard against end play. Together with the rule rivet they maintain accurate length, very important on these rules which have many joints. Another feature of our Rules is the Stiff Steel Spring assembled in each joint, this being in addition to the regular spring plates. It also is shown below.

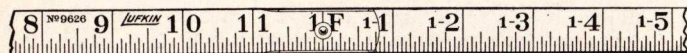


Rules in "Consecutive Inches" have inch numbers continuous throughout, as illustrated below. Example: 6-foot Rule numbered 1 to 72.

Rules in "Feet and Inches" have foot number at each foot, 1F, 2F, etc., and have inches in each foot numbered 1 to 11. Such Rules also have Instantaneous Readings, last preceding foot number repeated at each inch.



Consecutive Inches



Feet and Inches

**ALUMINUM FOLDING RULES** (pages 98 and 99) are widely used in the building trades and in mills and shops. They give excellent satisfaction because they hold a closer degree of accuracy and are more durable than Wood Rules, and are lighter weight and lower in price than corresponding Steel Rules. As they have solid brass joints they are rust-proof throughout. The large rivet heads and washers are flush embedded in the metal, holding the length very securely. We offer Aluminum Rules also with Folding End Hook, illustrated next page.



## Section Four (Continued)

# **LUFKIN**

**SPRING JOINT WOOD RULES.**

**BOXWOOD RULES.**

**ALUMINUM RULES.**

**FOLDING EXTENSION RULES.**

**BOXWOOD RULES** (pages 100 to 106) are the oldest type of folding wood rule in common use today. Ours are of Genuine Boxwood, thoroughly seasoned well finished in the natural wood, and carefully inspected. All have ends capped and have closing pins. Joints, hinges, caps, etc., are of solid brass. Our Rules are graduated by improved methods and markings are clear, black and permanent. Widths specified are those of the Rules when closed.

In Boxwood Rules there are three types of main or center joint:

“Round Joint”—one flange embedded in each leg of Rule.

“Square Joint”—two square-end flanges, one set flush into each side of rule leg, a better rule.

“Arch Joint”—same as square joint but flanges longer and their ends arch-formed, making a good rule and one of finest appearance.

“Middle Plate” Rules have legs of hinge inserted in the wood.

“Edge Plate” Rules have legs of hinge flush with edges of wood.

“Unbound” Rules have plain edges.

“Full Bound” Rules have both edges brass covered.

“English Pattern” Boxwood Rules have figures reading from left to right, and are specified by adding “LR,” as “No. 781LR.” We stock and we supply them without extra charge. The demand for them is limited practically to the British Empire and we there automatically furnish them under regular catalogued stock numbers.

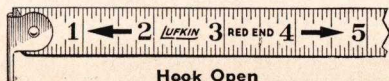
English and Metric Boxwood Rules, in English lengths, are regular stock with us in the following numbers only, and these take regular price:

**651EM      781EM      372EM      386EM      781C-EM      863L-EM**

We offer also a 1-meter, 4-fold in Metric and English, No. **3851ME**.

**FOLDING EXTENSION RULES** (page 93) are extra sturdy wood rules, ideal both for taking inside measurements (as of door, window and other openings), and for all other common measuring. They have heavier sections and joints than other similar folding rules, and are finished in the natural wood. They have Patent Lock Joints and Stiff Steel Spring in each joint, valuable features described on preceding page. They are offered also with Folding Hook, described below.

**Folding End Hook**, illustrated below, is another of our patented features. Ours is the most practical, sturdy, and handiest rule hook. While useful in practically all measuring, it is just the thing for work beyond arms reach. Opened, this metal hook extends  $\frac{3}{8}$  inch from lower edge of rule and zero falls at inside of hook. Hook is also readily folded up and holds itself flush with edge of rule, and the rule is then, for carrying and for use, same as those without hook, zero falling at extreme end. This hook can be supplied on our Aluminum Rules, our Spring Joint Wood Rules, and Folding Extension Rules, as listed in this Catalog.





## "Red End" Spring Joint Rules

(Reg. U. S. Pat. Off.)

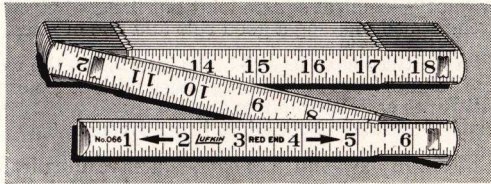
### THE WORLD'S BEST SPRING JOINT WOOD RULES

**Flexible Hardwood.  $\frac{5}{8}$  Inch Wide. Six-inch Folds. Patented Lock Joints. Strike Plates. Solid Brass Mountings.**

"Red End" Rules are the finest of folding wood rules; superior in quality of materials, in finish and appearance. Sections of selected hardwood. Concealed joints of solid brass, rust-proof and smooth-working. Brass strike plates on each section prevent wear on markings in opening and closing. Brass caps at ends.

Thoroughly well finished in most durable enamels, snow white and cream. Ends are gloss red, most attractive and setting off the "Red End" from all other rules.

Double graduation, 16ths on both upper and lower edge of each side. Patented lock joints reduce end play and thus greatly aid in maintaining accuracy.



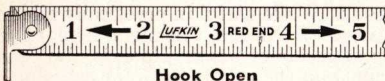
Marked Consecutive Inches to 16ths, Both Edges of Both Sides

No.	Length	Color	Wt., Doz.	Per Doz.	No.	Length	Color	Wt., Doz.	Per Doz.
<b>054</b>	4 ft.	Cream	2 $\frac{1}{4}$ lbs.	\$4.80	<b>064</b>	4 ft.	White	2 $\frac{1}{4}$ lbs.	\$ 5.20
<b>055</b>	5 ft.	Cream	2 $\frac{3}{4}$ lbs.	6.00	<b>065</b>	5 ft.	White	2 $\frac{3}{4}$ lbs.	6.50
<b>056</b>	6 ft.	Cream	3 $\frac{1}{2}$ lbs.	7.20	<b>066</b>	6 ft.	White	3 $\frac{1}{2}$ lbs.	7.80
<b>058</b>	8 ft.	Cream	4 $\frac{1}{2}$ lbs.	9.60	<b>068</b>	8 ft.	White	4 $\frac{1}{2}$ lbs.	10.40

## "Red End" Rules with Patented Folding Hook

These rules are of highest grade, superior in quality and finish. They are identical with those described above but equipped with patented hook.

This small and sturdy metal hook at one end is ideal on work beyond arms reach, and handy in other measuring. Hook is permanently attached yet in such manner that with a twist of the finger it folds up and remains flush with edge of rule, making the rule for use same as those without hook. Zero falls at inside of open hook; at extreme end of rule when hook is closed.



Hook Open



Hook Closed

Marked Consecutive Inches to 16ths, Both Edges of Both Sides

<b>No. H-056</b>	6 ft. Cream.	Per Doz. \$7.80	<b>No. H-066</b>	6 ft. White.	Per Doz. \$8.40
------------------	--------------	-----------------	------------------	--------------	-----------------

(Hook can be supplied on rules of any other length. Specify as **H-054**, etc.)

Packing:  $\frac{1}{2}$  doz. per box

NOTES: "Two Way—Red End" Rule—See page 94.

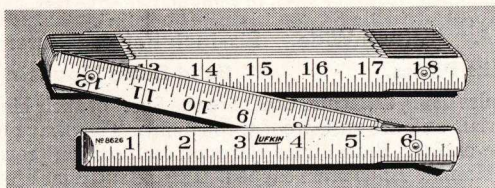
"Red End" Rules with Inside Markings; Also Marked 100ths Foot;  
Also Marked Metric and English—See pages 90 and 96.



## Spring Joint Rules

All rules shown on this page are of **LUFKIN** Standard Grade and Brand. These are the grade and the types that for years have been most extensively used.

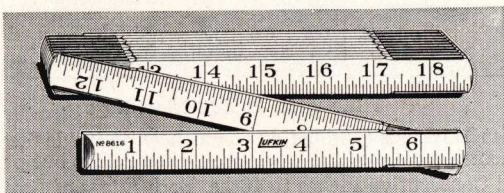
**Flexible Hardwood.**  $\frac{5}{8}$  Inch Wide. **Six-Inch Folds.**  
**Brass Plated Mountings.** **Patented Lock Joints.**



### Rivet Joints

Marked Consecutive Inches to 16ths, Both Sides.

No.	Length	Color	Wt., Doz.	Per Doz.	No.	Length	Color	Wt., Doz.	Per Doz.
8523	3 ft.	Yellow	1½ lbs.	\$2.50	8623	3 ft.	White	1½ lbs.	\$ 2.95
8524	4 ft.	Yellow	2 lbs.	3.40	8624	4 ft.	White	2 lbs.	3.60
8525	5 ft.	Yellow	2½ lbs.	4.20	8625	5 ft.	White	2½ lbs.	4.80
8526	6 ft.	Yellow	3 lbs.	4.80	8626	6 ft.	White	3 lbs.	5.40
8528	8 ft.	Yellow	4 lbs.	6.60	8628	8 ft.	White	4 lbs.	7.20



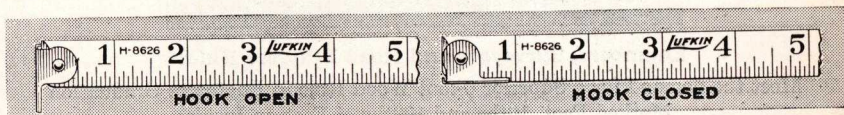
### Concealed Joints

Marked Consecutive Inches to 16ths, Both Sides.

No.	Length	Color	Wt., Doz.	Per Doz.	No.	Length	Color	Wt., Doz.	Per Doz.
8514	4 ft.	Yellow	2 lbs.	\$3.40	8614	4 ft.	White	2 lbs.	\$3.60
8515	5 ft.	Yellow	2½ lbs.	4.20	8615	5 ft.	White	2½ lbs.	4.80
8516	6 ft.	Yellow	3 lbs.	4.80	8616	6 ft.	White	3 lbs.	5.40

### Spring Joint Rules with Patented Folding Hook

Same as above rules except having at one end a small and sturdy metal hook. Ideal for work beyond arms reach, handy for other measuring. Hook readily folds and holds flush with edge, making the rule for use same as those without hook. Zero falls at inside of open hook; at extreme end of rule when hook is closed.



### Rivet Joints

Marked Consecutive Inches to 16ths, Both Sides.

No.	Length	Color	Wt., Doz.	Per Doz.	No.	Length	Color	Wt., Doz.	Per Doz.
H-8525	5 ft.	Yellow	2½ lbs.	\$ 4.80	H-8625	5 ft.	White	2½ lbs.	\$ 5.40
H-8526	6 ft.	Yellow	3 lbs.	5.40	H-8626	6 ft.	White	3 lbs.	6.00
H-8528	8 ft.	Yellow	4 lbs.	7.20	H-8628	8 ft.	White	4 lbs.	7.80

(Hook supplied on any other rules shown on this page; specify as H-8516, etc.)

Packing: 3 ft. Rules, 1 doz.; all other lengths, ½ doz. per box.

NOTES: Rules of same quality with Inside Marking; Rules numbered Feet and Inches; and Rules graduated 100ths foot—See page 91.

Rules graduated Metric and English—See page 97.



## "Red End" Spring Joint Rules

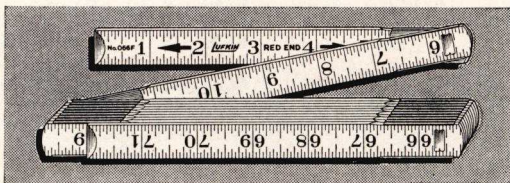
(Reg. U. S. Pat. Off.)

**"RED END" RULES OF TWO KINDS ARE LISTED ON THIS PAGE:**

- (1) Inch graduation with flat markings (numbering commences on inside face).
- (2) Engineers graduation (100ths of feet), in combination with feet and inches.

**Flexible Hardwood.  $\frac{5}{8}$  Inch Wide. Six-inch Folds. Patented Lock Joints. Strike Plates. Solid Brass Mountings.**

"Red End" Rules **066F**, **056D** and **066D** are the finest of their kind. They are made from choicest materials and are rust-proof throughout. They have concealed joints of solid brass, smooth-working. Brass strike plates on each section prevent wear on markings in opening and closing. Ends brass capped. The patented lock joints are a great aid in maintaining accuracy. These superior rules are well finished in durable, snow white and cream enamels, and have gloss red ends setting them off from all others.



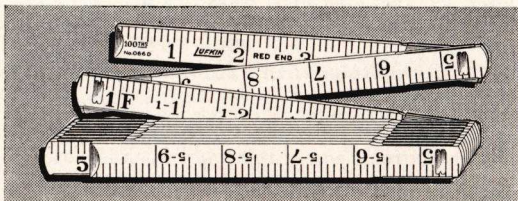
**Rule with Inside Markings**

Flat Markings (numbering commences on inside face)

Measurement lies close to the work even when rule is but partly open

Marked Consecutive Inches to 16ths, Both Edges of Both Sides

**No. 066F "Red End" 6 ft. White Enameled. Wt. doz.  $3\frac{1}{2}$  lbs. .... Per doz. \$7.80**



**Engineers, Surveyors and Road Builders Rules★**

Meet the demand for a Superior 6-foot Wood Rule in Engineers Graduation

Marked Feet, 10ths and 100ths of Feet on Inside;

Feet, Inches and 16ths on Outside

Instantaneous Readings (foot numbers in red, repeated each 10th and each inch)

**No. 056D "Red End" 6 ft. Cream Enameled. Wt. doz.  $3\frac{1}{2}$  lbs. .... Per doz. \$7.20**

**No. 066D "Red End" 6 ft. White Enameled. Wt. doz.  $3\frac{1}{2}$  lbs. .... Per doz. 7.80**

Packing:  $\frac{1}{2}$  doz. per box

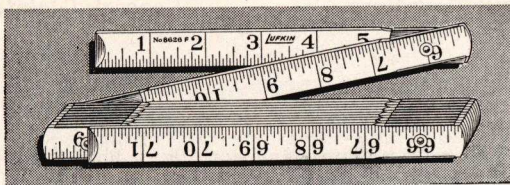
**NOTE: ★Folding Aluminum Rules in Engineers Graduation (100ths of feet)—See page 99.**



## Spring Joint Rules

All Rules shown on this page are of **LUFKIN** Standard Grade and Brand.

**Flexible Hardwood.**  $\frac{5}{8}$  Inch Wide. **Six-inch Folds.**  
**Brass Plated Mountings.** **Patented Lock Joints.**



### Rules with Inside Markings

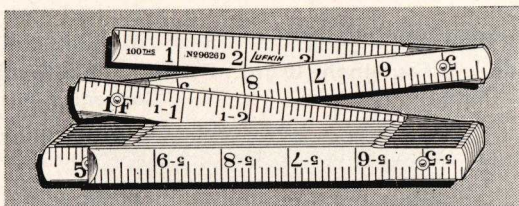
Flat Markings (numbering commences on inside face)

Measurement lies close to the work even when rule is but partly open

Marked Consecutive Inches to 16ths, Both Sides

#### Rivet Joints

No.	Length	Color	Wt., Doz.	Per Doz.	No.	Length	Color	Wt., Doz.	Per Doz.
8524F	4 ft.	Yellow	2 lbs.	\$3.40	8624F	4 ft.	White	2 lbs.	\$3.60
8525F	5 ft.	Yellow	2½ lbs.	4.20	8625F	5 ft.	White	2½ lbs.	4.80
8526F	6 ft.	Yellow	3 lbs.	4.80	8626F	6 ft.	White	3 lbs.	5.40

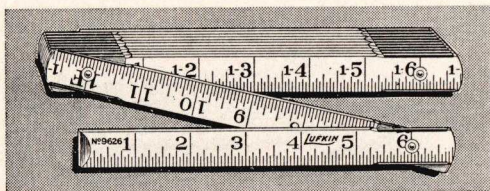


### Engineers, Surveyors and Road Builders Rules ★

Marked Feet, 10ths and 100ths of Feet on Inside; Feet, Inches and 16ths on Outside  
 Instantaneous Readings (foot numbers in red, repeated each 10th and each inch)

#### Rivet Joints

No.	Length	Color	Wt., Doz.	Per Doz.	No.	Length	Color	Wt., Doz.	Per Doz.
9525D	5 ft.	Yellow	2½ lbs.	\$4.20	9625D	5 ft.	White	2½ lbs.	\$4.80
9526D	6 ft.	Yellow	3 lbs.	4.80	9626D	6 ft.	White	3 lbs.	5.40



### Rules in Feet and Inches

Marked Feet, Inches and 16ths, Both Sides (Inches in each foot numbered one to eleven)

Instantaneous Readings (foot numbers in red and repeated at each inch)

No. 9526	6 ft.	Yellow.	Rivet Joints.	Wt. doz. 3 lbs.	Per doz.	\$4.80
No. 9626	6 ft.	White.	Rivet Joints.	Wt. doz. 3 lbs.	Per doz.	5.40

Packing: ½ doz. per box

NOTE: ★ "Red End" and Aluminum Rules in 100ths of feet—See pages 90 and 99.



## "National" Folding Rules

Our "National" meets the demand for a popular priced, common, six-foot rule, a leader item. It does not carry Lufkin name.

**Flexible Hardwood.** **5/8 Inch Wide.** **Six-inch Folds.**  
**Steel Mountings.** **Concealed Joints.**



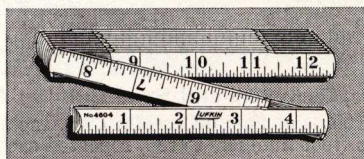
Marked Consecutive Inches to 16ths, Both Sides

No. 576	"National."	6 foot.	Yellow.	Wt. doz. 3 lbs.	Per doz.	\$2.90
No. 676	"National."	6 foot.	White.	Wt. doz. 3 lbs.	Per doz.	3.00
Packing: 1/2 doz. per box						

## Narrow Spring Joint Rules

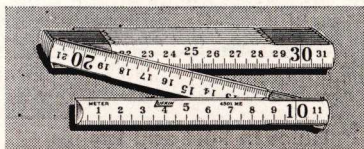
These are a very neat, pocket size, light weight rule. They are a miniature of the mechanics full size rule, but of about one half its weight. They are of the same high quality. They are most compact, and appeal especially to those who have only occasional measuring to do, and wish a three or four foot wood rule convenient to carry.

**7/16 Inch Wide.** **Four-inch (10 cm.) Folds.** **Flexible Hardwood.**  
**Brass Plated Mountings.** **Concealed Joints.**



Marked Consecutive Inches to 16ths, Both Sides

No. 4503	3 foot.	Yellow.	Wt. doz. 1 lb.	Per doz.	\$5.40
No. 4504	4 foot.	Yellow.	Wt. doz. 1 1/4 lbs.	Per doz.	7.20
No. 4603	3 foot.	White.	Wt. doz. 1 lb.	Per doz.	5.80
No. 4604	4 foot.	White.	Wt. doz. 1 1/4 lbs.	Per doz.	7.70



Marked Metric and English

Millimeters on outside; inches to 16ths on inside

No. 4501ME	1 meter.	10 fold.	Yellow.	Wt. doz. 1 lb.	Per doz.	\$6.00
No. 4601ME	1 meter.	10 fold.	White.	Wt. doz. 1 lb.	Per doz.	6.40

Packing: 1/2 doz. per box



## Folding Extension Rules

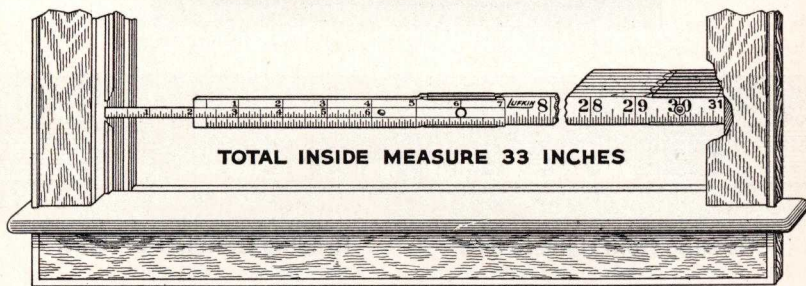
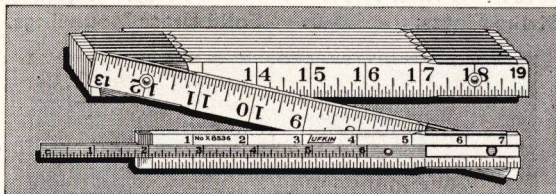
SUITABLE FOR BOTH INSIDE AND ALL OTHER COMMON MEASURING

Boxwood and Maple.

$\frac{5}{8}$  Inch Wide.

Six-inch Folds.

Brass Plated Spring Joints with Patented Lock



Superior rules ideal for all general measuring and also for taking inside measurements of door and window openings, etc. Serving this dual purpose, they are very popular with mechanics in the building trades, with contractors, architects and many others. They are a durable wood rule; their extra weight also makes them more rigid than ordinary types, a feature of great value in measuring openings.

All rules listed on this page have, in one of the first end sections, a 6-inch graduated brass slide. This slide runs under friction in a T slot. It has stop at each end, so cannot be lost out or entirely removed. All have smooth-working spring joints of rivet type, properly holding sections in alignment both when open and closed. The patented lock joints reduce end play, and so maintain accuracy. End caps are of brass, flush inlaid and riveted. All of these rules are well finished in the natural wood and have black markings, easy to read.

Rule **X-46** is of selected, hard maple. It has strike plates, small brass plate both sides of each section, preventing wear on markings in opening and closing.

Rule **X-8536** is of genuine boxwood; the finest 6-foot wood rule on the market.

Rules **HX-46** and **HX-8536** are same as the others except having metal hook. This sturdy hook is ideal for work beyond arms reach, but readily folds and holds itself flush with edge. Zero falls at inside of open hook; at end of rule when hook is closed.

### TO TAKE AN INSIDE MEASUREMENT

Open rule to within 6 inches or less of the distance. Butt its square end against one side of opening, extend brass slide until it strikes other side. Add measurement on slide to that shown at other end of the rule, and you have the exact measure of the opening. The extension slide, being  $\frac{1}{4}$  inch wide, is suitable for measuring depth of mortises and other holes. (Inside measuring capacity of these rules is 78 inches.)

### Rule Marked Consecutive Inches to 16ths, Both Sides

Brass Extension Slide Marked Inches to 16ths

Number		Wt., Per Doz.	Per Doz.
<b>X-8536</b>	6 ft. Boxwood Extension Rule.....	4 $\frac{3}{4}$ lbs.	\$14.40
<b>X-46</b>	6 ft. Maple Extension Rule.....	4 $\frac{1}{2}$ lbs.	12.00
<b>HX-8536</b>	6 ft. Boxwood Extension Rule with Hook.....	4 $\frac{3}{4}$ lbs.	15.60
<b>HX-46</b>	6 ft. Maple Extension Rule with Hook.....	4 $\frac{1}{2}$ lbs.	13.20

Packing:  $\frac{1}{2}$  doz. per box

NOTES: Extension Steel Tape-Rule—See page 84.

Extension Rules, Not Folding—See pages 95 and 121

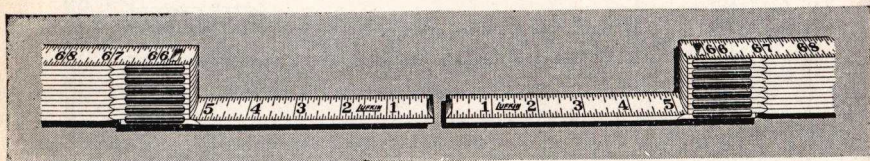
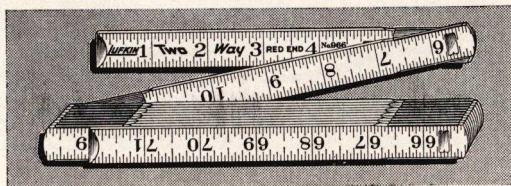


## “Two Way—Red End” Rule

(Reg. U. S. Pat. Off.)

OF HIGHEST GRADE AND UNLIKE ANY OTHER RULE  
Equally Handy for Measuring Left to Right and Right to Left

Flexible Hardwood.  $\frac{5}{8}$  Inch Wide. Six-inch Folds. Patented Lock Joints.  
Strike Plates. Solid Brass Mountings.



Reading from right to left.

Reading from left to right.

As pictured above, the “Two Way” Rule has figures one side reading left to right, other side reading right to left. Left to right is the natural measuring direction; right to left is most convenient when rule is in left hand, pencil or saw in the right. This rule is handy for measuring right and left out of a corner. Also, when measuring distances longer than the rule, the completing length is shown, with figures right side up, by simply turning over the rule. The sections that are open for use lie flat directly on the work, because the “Two Way” Rule has inside markings on both sides, i.e., numbering commences on inside face as illustrated. Red dot on outside indicates at a glance zero end of side numbered left to right.

The “Two Way” has the superior features of other “Red End” Rules. Materials throughout are of best quality. It has 16ths on both upper and lower edge of each side. The concealed joints are of solid brass, rust-proof and smooth-working. Brass strike plates on each section prevent wear on markings in opening and closing. Brass caps at ends. Patented lock joints reduce end play, thus greatly aiding in maintaining accuracy. Finest finish and appearance, rule in snow white enamel with ends in gloss red.

Marked Consecutive Inches to 16ths, Both Edges of Both Sides  
**No. 966 6 ft. “Two Way—Red End” Rule.** White Enameled. Per Doz. \$7.80

Folding End Hook, shown page 87, supplied at small extra charge  
This rule, fitted with hook at left end, is known as No. **H-966**

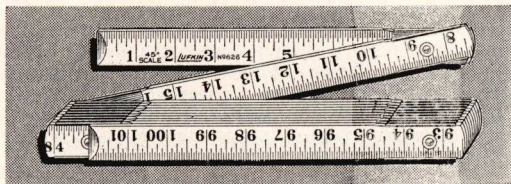
Packing:  $\frac{1}{2}$  doz. per box. Wt. doz.  $3\frac{1}{2}$  lbs.

NOTE: Other “Red End” Rules—See pages 88, 90 and 96.



## Plumbers and Steamfitters Spring Joint Rule

Gives Standard Measurements, in Black;  
Corresponding 45 Degree Lengths in Red



In pattern and construction this is a standard type Spring Joint Wood Rule, white enameled, with rivet joints. It has six-inch folds, is  $\frac{5}{8}$  inch wide, and has patented lock joints. All mountings are brass plated.

Marked on outside, in black, 72 standard inches to 16ths, suitable for all ordinary measuring work. Marked on inside, with red figures, 45 degree scale inches to 16ths, for converting common 90° measurement into 45° length. Simply turning over the rule from black to red side gives at a direct reading the corresponding 45 or elbow measurement, eliminating all figuring and chance of error.

Example: Take the right angle measure of the offset. Say this is 35 inches.

Turn to red side of rule and directly opposite 35 will be found 49½ inches, the corresponding 45° length, center to center of pipe fittings.

No. 626 6 ft. Plumbers and Steamfitters Rule. Wt. doz. 3 lbs. . . . . Per doz. \$9.00

## Extension Rules for Automobile Glass

Inexpensive and Handy for the Auto Glass Replacement Trade



Two-section natural Wood Rules, telescoping to 19 inches, extending to 36 inches. Sections  $1\frac{1}{16}$  inch wide,  $\frac{5}{32}$  inch thick, ends plain. Sections slide in brass clips, with stop at each end. Measurement is constantly indicated as rule is being extended, and markings and figures are in black, easy to read.

Marked Inches to 16ths, Upper Edge, One Side

No. 7161 Maple Extension Rule. 19 to 36 inch. Wt. doz. 2½ lbs. . Per doz. \$4.80

No. 7160 Basswood Extension Rule. 19 to 36 inch. Wt. doz. 1¾ lbs. . Per doz. 3.00

Both these rules are suitable for carrying advertisement.

In fair quantity they can be so supplied. Prices on application.

NOTES: Folding Extension Rules—See page 93.

Extension Steel Tape-Rule—See page 84.

Long Two-piece Extension Rules—See page 121.



# "Red End" Metric-English Spring Joint Rules

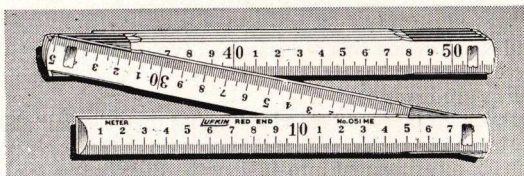
(Reg. U. S. Pat. Off.)

**Flexible Hardwood.  $\frac{5}{8}$  Inch (16 mm.) Wide. Patented Lock Joints.**  
**Strike Plates. Solid Brass Mountings.**

These are the highest grade Metric Spring Joint Rules on the market. They are of best selected materials, rust-proof throughout, and superior also in finish and appearance.

Brass strike plates on each section prevent wear on markings in opening and closing. The concealed joints are of solid brass, smooth-working. Ends are brass capped. The patented lock joints aid greatly in maintaining accuracy.

"Red End" Rules are exceptionally well finished in most durable enamels, snow white and cream. The ends are gloss red, most attractive and setting off this line from all others.



*In Ordering Rules Below Always Specify, in Addition to Stock Number, the Number of Folds, as "051ME—6 fold," etc.*

## Marked Metric and English

Millimeters one side; Inches to 16ths other side

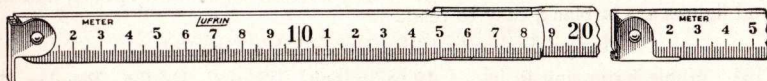
Number		Length	Color	Wt., Doz.	Per Doz.
051ME	6 fold	1 meter	Cream	1 $\frac{3}{4}$ lbs.	\$ 3.90
051ME	10 fold	1 meter	Cream	2 $\frac{1}{4}$ lbs.	5.40
052ME	10 fold	2 meter	Cream	3 $\frac{1}{2}$ lbs.	7.20
052ME	12 fold	2 meter	Cream	3 $\frac{3}{4}$ lbs.	7.90
054EM	8 fold	4 foot	Cream	2 $\frac{1}{4}$ lbs.	4.80
061ME	6 fold	1 meter	White	1 $\frac{3}{4}$ lbs.	4.20
061ME	10 fold	1 meter	White	2 $\frac{1}{4}$ lbs.	5.70
062ME	10 fold	2 meter	White	3 $\frac{1}{2}$ lbs.	7.50
064EM	8 fold	4 foot	White	2 $\frac{1}{4}$ lbs.	5.20

• All above have Metric outside, English inside, except EM 4-foot, which is the reverse.

## Marked Metric, English and Burgos (Spanish)

Millimeters and Burgos one side; Inches to 16ths other side

No. 051MEB	10 fold.	1 meter.	Cream.	Wt. doz. 1 $\frac{3}{4}$ lbs.	Per doz.	\$5.60
No. 054EMB	8 fold.	4 foot.	Cream.	Wt. doz. 2 $\frac{1}{4}$ lbs.	Per doz.	5.00



**Folding Hook:** Patented Hook as here shown and as described page 87, can, at small extra charge, be supplied on any rule listed on this page.  
 Specify as "**H-052ME 10-fold**," etc.

Packing: One meter rules. . . . . 1 doz. per box; All other lengths. . . .  $\frac{1}{2}$  doz. per box.

NOTES: "Red End" Rules can be supplied also marked: Metric and Norsk (or Danish).  
 Metric, English and Norsk. Metric and Gamla.  
 Other Metric-English Spring Joint Rules—See pages 92 and 97.

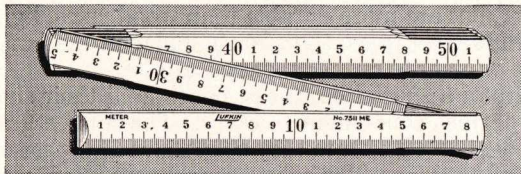


## Metric-English Spring Joint Rules

Flexible Hardwood.  
Brass Plated Mountings.

$\frac{5}{8}$  Inch (16 mm.) Wide.  
Patented Lock Joints.

*In Ordering Any of the Rules Below Always Specify, in Addition to Stock Number, the Number of Folds, as "7511ME 6 fold" etc.*

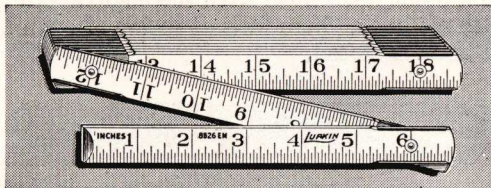


### Rules of Metric Lengths, Marked Metric and English

Millimeters on outside; inches to 16ths on inside

#### Concealed Joints

YELLOW ENAMELED				WHITE ENAMELED			
Number	Length	Wt.	Per Doz.	Number	Length	Wt.	Per Doz.
7511ME	6 fold	1 meter $1\frac{1}{2}$ lbs.	\$2.60	7611ME	6 fold	1 meter $1\frac{1}{2}$ lbs.	\$2.80
7511ME	10 fold	1 meter 2 lbs.	3.60	7611ME	10 fold	1 meter 2 lbs.	3.80
7512ME	10 fold	2 meter 3 lbs.	4.40				
7512ME	12 fold	2 meter $3\frac{1}{4}$ lbs.	4.70	7612ME	12 fold	2 meter $3\frac{1}{4}$ lbs.	5.00

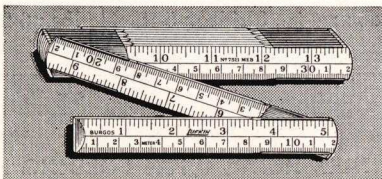


### Rules of English Lengths, Marked English and Metric

Inches to 16ths on outside; millimeters on inside

#### Rivet Joints

No. 8524EM	8 fold.	4 foot.	Yellow.	Wt. doz. 2	lbs.	Per doz.	\$3.40
No. 8525EM	10 fold.	5 foot.	Yellow.	Wt. doz. $2\frac{1}{2}$	lbs.	Per doz.	4.20
No. 8526EM	12 fold.	6 foot.	Yellow.	Wt. doz. 3	lbs.	Per doz.	4.80
No. 8624EM	8 fold.	4 foot.	White.	Wt. doz. 2	lbs.	Per doz.	3.60
No. 8626EM	12 fold.	6 foot.	White.	Wt. doz. 3	lbs.	Per doz.	5.40



### Marked Metric, English and Burgos (Spanish)

Millimeters and Burgos one side; Inches to 16ths other side

No. 7511MEB	10 fold.	1 meter.	Yellow.	Concealed Joints.	Per doz.	\$3.70
No. 8514EMB	8 fold.	4 foot.	Yellow.	Concealed Joints.	Per doz.	3.40

**Folding Hook**, as illustrated page 96, can, at small extra charge, be supplied on any rule listed on this page. Specify as "**H-7512ME 10 fold**," etc.

Packing: One meter rules. . . . . 1 doz. per box; All other lengths. . . . .  $\frac{1}{2}$  doz. per box.

NOTE: "Red End" and Narrow Pattern Metric-English Rules—See pages 96 and 92.



## Aluminum Rules

### Durable and Accurate Folding Rules for General Use

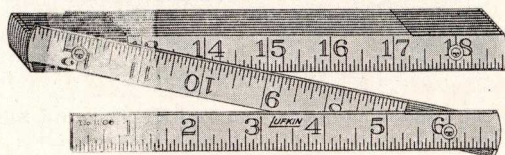
$\frac{9}{16}$  Inch Wide.  
Solid Brass Joints.

Six-inch Folds.  
Rust-proof Throughout.

Aluminum Rules are more durable than wood rules, lighter weight and lower in price than steel rules, therefore popular in the building trades, on all construction work, and in mills, shops, etc.

Our rules are of a special hardness, hence hold their shape well. They are of size and pattern convenient to carry. The sunken graduation marks and large figures, all in black, are easy to read, contrasting with the natural dull aluminum of the rule. The solid brass spring joints properly hold the sections in alignment, both when rule is open and closed. The joints are rivet type, rivet passes through both the brass joint plates and the aluminum rule sections. The large rivet heads and washers are flush embedded in the metal, very securely holding the rule to length.

We offer Aluminum Rules also with folding hook. This is a small yet sturdy brass hook attached to one end. It is ideal for work beyond arms reach and handy in other measuring. This patented hook can readily be folded up and then holds itself flush with the edge, making the rule for use same as those without hook. Zero falls at inside of open hook; at extreme end of rule when hook is closed.

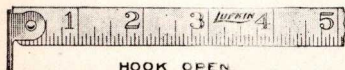


#### ALUMINUM RULES WITHOUT HOOK

Marked Consecutive Inches to 16ths, Both Sides

No. 1204	4 ft. Aluminum Rule.....	Per doz.	\$ 9.50
No. 1205	5 ft. Aluminum Rule.....	Per doz.	12.00
No. 1206	6 ft. Aluminum Rule.....	Per doz.	14.20

Wt. per doz.: 4-ft.,  $3\frac{1}{4}$  lbs.; 5-ft.,  $4\frac{1}{4}$  lbs.; 6-ft., 5 lbs.



HOOK OPEN



HOOK CLOSED

#### ALUMINUM RULES WITH FOLDING HOOK

Marked Consecutive Inches to 16ths, Both Sides

No. H-1206	6 ft. Aluminum Rule with Hook.....	Per doz.	\$15.40
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Weight per doz., 5 lbs.

NOTE: Hook can be supplied on 4 and 5 ft. rules at \$1.20 per dozen additional to prices of Nos. 1204 and 1205. Specify as "H-1204" and "H-1205."

Packing:  $\frac{1}{4}$  doz. per box

## Aluminum Rules

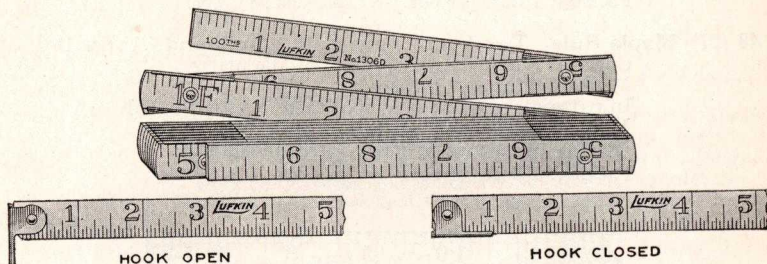
### Engineers Rules.

$\frac{9}{16}$  Inch Wide.  
Solid Brass Joints.

### English-Metric Rules.

Six-inch Folds.  
Rust-proof Throughout.

These Rules differ only in graduation from those on preceding page. See that page for details of their construction and their other improved features.



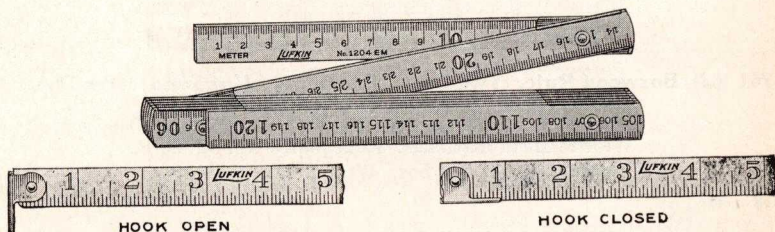
### ALUMINUM RULE FOR ENGINEERS, SURVEYORS AND ROAD BUILDERS

#### WITHOUT HOOK.

#### WITH FOLDING HOOK.

Marked Feet, 10ths and 100ths of Feet on Inside;  
Feet, Inches and 16ths on Outside

No. 1306D	6 ft. Aluminum Rule without Hook.....	Per doz.	\$18.00
No. H-1306D	6 ft. Aluminum Rule with Hook.....	Per doz.	19.20
Weight per doz., 5 lbs. Packing: $\frac{1}{4}$ doz. per box			



### ALUMINUM RULE MARKED ENGLISH AND METRIC

#### WITHOUT HOOK.

#### WITH FOLDING HOOK.

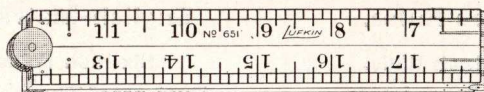
Marked Millimeters Inside; Inches to 16ths Outside

No. 1204EM	4 ft. Aluminum Rule without Hook.....	Per doz.	\$11.50
No. H-1204EM	4 ft. Aluminum Rule with Hook.....	Per doz.	12.70

Weight per doz.,  $3\frac{1}{4}$  lbs. Packing:  $\frac{1}{4}$  doz. per box



## Boxwood Rules



No. 651 (68) **Boxwood Rule. Two Foot. Four Fold. Unbound.** Per Doz. \$2.50

One inch wide. Round joint. Middle plates.

Marked: 8ths and 16ths inch.

Markings and figures very prominent.

Our lowest priced boxwood rule.

Packing: 1 doz. per box. Wt. per doz.,  $1\frac{1}{4}$  lbs.

No. 48 (27) **Maple Rule. Two Foot. Four Fold. Unbound.** Per Doz. \$1.80

One inch wide. Round joint. Middle plates.

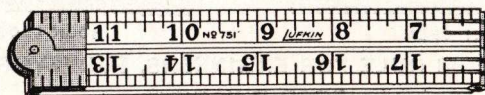
Marked: 8ths and 16ths inch.

In pattern corresponds approximately with No. 651.

Made of hard maple in natural finish.

Overlay brass caps at ends. Brass trimmings.

Packing: 1 doz. per box. Wt. per doz., 1 lb.



No. 751 (61) **Boxwood Rule. Two Foot. Four Fold. Unbound.** Per Doz. \$4.60

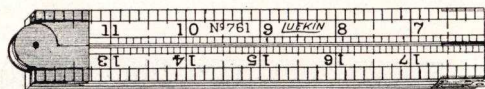
One inch wide. Square joint. Middle plates.

Marked: 8ths and 16ths inch.

Markings and figures very prominent.

Largest seller among medium priced rules.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $1\frac{1}{2}$  lbs.



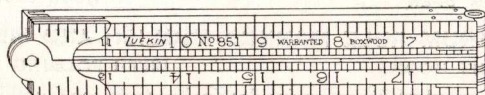
No. 761 (63) **Boxwood Rule. Two Foot. Four Fold. Unbound.** Per Doz. \$7.40

One inch wide. Square joint. Edge plates.

Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales.

Wide range of markings. Edge plates add strength.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $1\frac{1}{2}$  lbs.



No. 851 (51) **Boxwood Rule. Two Foot. Four Fold. Unbound.** Per Doz. \$5.90

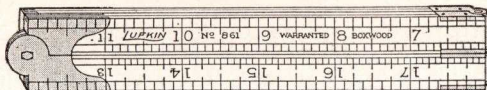
One inch wide. Arch joint. Middle plates.

Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales.

Arch joint is strong and of fine appearance.

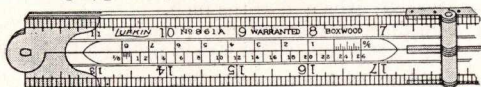
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $1\frac{1}{2}$  lbs.

## Boxwood Rules



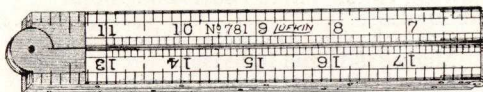
**No. 861 (53) Boxwood Rule. Two Foot. Four Fold. Unbound...Per Doz. \$7.60**

One inch wide. Arch joint. Edge plates.  
Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales.  
Edge plates and arch joint, strong and attractive.  
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $1\frac{1}{2}$  lbs.



**No. 861A (53 $\frac{1}{2}$ ) Architects Boxwood Rule. Two Foot. Four Fold. Unbound...Per Doz. \$12.00**

One inch wide. Arch joint. Edge plates.  
Marked:  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch architects scales, and inches to 8ths, 10ths, 12ths and 16ths. Inside edges carrying scales are beveled, hence lie close to the work. Rule designed for work on drawings and plans, and suitable for general use.  
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $1\frac{1}{2}$  lbs.

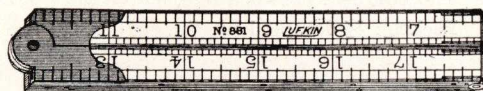


**No. 781 (62) Boxwood Rule. Two Foot. Four Fold. Full Bound...Per Doz. \$12.10**

One inch wide. Square joint. Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales. Both edges brass bound. A most durable, practical and popular rule.  
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $2\frac{1}{2}$  lbs.

**No. 780 (62 $\frac{1}{2}$ ) Boxwood Rule. Two Foot. Four Fold. Full Bound...Per Doz. \$12.10**

Three-quarter inch wide. Square joint.  
Marked: 8ths, 10ths, 12ths and 16ths inch.  
A narrow rule, handy to carry, yet durable.  
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 2 lbs.



**No. 881 (54) Boxwood Rule. Two Foot. Four Fold. Full Bound...Per Doz. \$13.35**

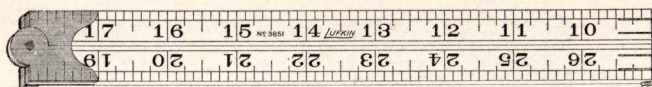
One inch wide. Arch joint. Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales. Both edges brass bound and rule having arch joint, is most attractive as well as sturdy.  
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $2\frac{1}{2}$  lbs.

**No. 881D Engineers Boxwood Rule. Two Foot. Four Fold. Full Bound...Per Doz. \$15.00**

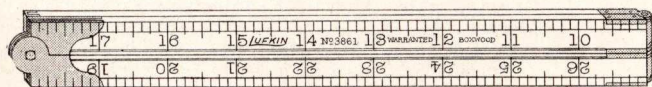
One inch wide. Arch joint. Both edges brass bound.  
Marked: 10ths and 100ths of feet one side; inches to 10ths and 16ths other side.  
Popular in some kinds of city and other engineering.  
Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.,  $2\frac{1}{2}$  lbs.



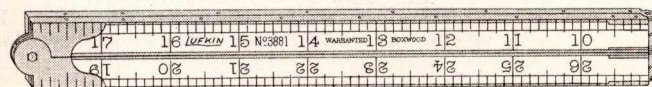
## Boxwood Rules



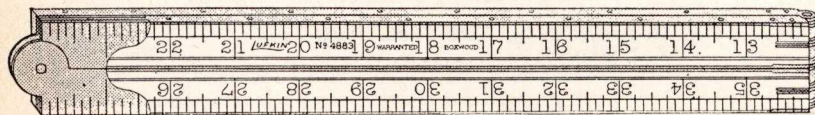
- No. **3851** ( $66\frac{1}{2}$ ) **Boxwood Rule. Three Foot. Four Fold.** Per Doz. \$8.00  
**Unbound**  
 One inch wide. Arch joint. Middle plates.  
 Marked: 8ths and 16ths inch.  
 Markings and figures very prominent.  
 Our most popular and lowest priced 3-ft. boxwood rule.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 2 lbs.



- No. **3861** ( $66\frac{1}{4}$ ) **Boxwood Rule. Three Foot. Four Fold.** Per Doz. \$10.10  
**Unbound**  
 One inch wide. Arch joint. Edge plates.  
 Marked: 8ths and 16ths inch.  
 A good 3-ft. rule, medium in price.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz. 2 lbs.



- No. **3881** ( $66\frac{3}{4}$ ) **Boxwood Rule. Three Foot. Four Fold.** Per Doz. \$21.90  
**Full Bound**  
 One inch wide. Arch joint.  
 Marked: 8ths and 16ths inch.  
 The best 3-ft. boxwood rule, both edges brass bound.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.  $3\frac{1}{4}$  lbs.



- No. **4883** (94) **Boxwood Rule. Four Foot. Four Fold.** Per Doz. \$40.10  
**Full Bound**  
 $1\frac{1}{2}$  inch wide. Arch joint.  
 Marked: 8ths and 16ths inch.  
 A sturdy 4-ft., being brass bound both edges, and of ample width.  
 Popular with stone workers and many others.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz.  $5\frac{1}{2}$  lbs.

## Blindmans Boxwood Rules

Rules **752B** and **3752B** are substantial and have extra large and heavy black figures, very easy to read, hence the name "Blindmans." They are suitable for use in poor light or by persons with poor eyesight.



No. **752B** (7)

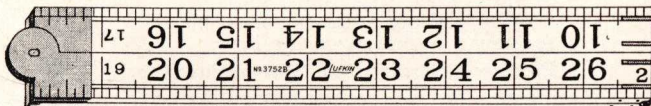
**Blindmans Boxwood Rule. Two Foot.**

**Four Fold. Unbound**..... Per Doz. \$12.00

1  $\frac{3}{8}$  inch wide. Square joint. Middle plates.

Marked: 8ths and 16ths inch.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 2 lbs.



No. **3752B** (170BE)

**Blindmans Boxwood Rule. Three Foot.**

**Four Fold. Unbound**..... Per Doz. \$12.45

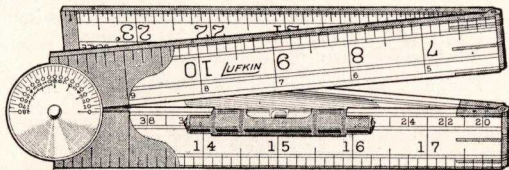
1  $\frac{3}{8}$  inch wide. Square joint. Middle plates.

Marked: 8ths and 16ths inch.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 3 lbs.

## Boxwood Combination Rule, Level and Protractor

Rules **863L** and **873L** have spirit level and brass protractor plate. They are sturdy and serve so many purposes that they are becoming increasingly popular. Very handy for carpenters and other mechanics, also for use around mines and for general use. They are not only practical rules, but, in ordinary work, with the aid of the protractor plate, angles of any degree are readily measured or laid out. The level is also very convenient. It is mounted in brass tube, and when rule is closed, is well protected.



No. **863L** **Boxwood Combination Rule, Level and Protractor.**

**Two Foot. Four Fold. Unbound**..... Per Doz. \$23.75

1  $\frac{1}{2}$  inch wide. Arch joint. Edge plates.

Marked: 8ths and 16ths inch, and drafting scales.

Packing: One in a box. Weight each 4 ozs.

No. **873L** **Boxwood Combination Rule, Level and Protractor.**

**Two Foot. Four Fold. Outer Edge Brass Bound**..... Per Doz. \$30.35

1  $\frac{1}{2}$  inch wide. Arch joint.

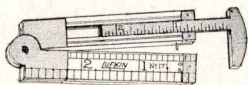
Marked: 8ths and 16ths inch, and drafting scales.

Packing: One in a box. Weight each, 5 ozs.



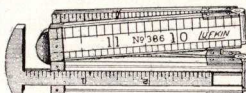
## Boxwood Caliper Rules

Caliper Rules are universally used in stores, warehouses, shops and mills, for measuring pipe and fittings, rods, bars, sheets, bolts, nuts, etc. One leg of these rules has brass caliper slide marked to 16ths and 32nds of inches. The rule itself is also graduated, hence suitable for usual measuring.



- No. **171** (36) **Boxwood Caliper Rule. Six inch. Two Fold.**  
**Unbound**..... Per Doz. \$7.95  
 One inch wide. Square joint.  
 Marked: Rule, 8ths, 10ths, 12ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 A compact pocket rule and caliper.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 1 lb.

- No. **172** (13 $\frac{1}{2}$ ) **Boxwood Caliper Rule. Six Inch. Two Fold.**  
**Unbound**..... Per Doz. \$11.50  
 1 $\frac{3}{8}$  inch wide. Square joint. Brass bit plate.  
 Marked: Rule, 8ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 A short, sturdy rule and caliper.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 1 $\frac{1}{4}$  lbs.

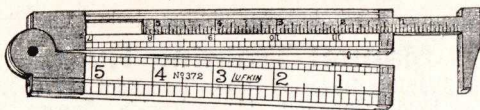


- No. **386** (32) **Boxwood Caliper Rule. One Foot. Four Fold.**  
**Unbound**..... Per Doz. \$12.20  
 One inch wide. Arch joint. Edge plates.  
 Marked: Rule, 8ths, 10ths, 12ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 Vest pocket size, yet opens to one foot.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 1 $\frac{1}{2}$  lbs.

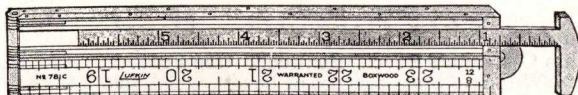


- No. **388** (32 $\frac{1}{2}$ ) **Boxwood Caliper Rule. One Foot. Four Fold.**  
**Full Bound**..... Per Doz. \$17.50  
 One inch wide. Arch joint.  
 Marked: Rule, 8ths, 10ths, 12ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 Brass bound both edges, a most durable 1-ft. rule, folds to three inches.  
 Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 1 $\frac{3}{4}$  lbs.

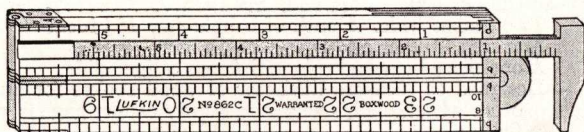
## Boxwood Caliper Rules



- No. 372 (36½) **Boxwood Caliper Rule. One Foot. Two Fold.**  
**Unbound**.....Per Doz. \$11.50  
 1⅜ inch wide. Square joint. Brass bit plate.  
 Marked: Rule, 8ths, 10ths, 12ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 A sturdy and popular rule, with caliper of good length.  
 Packing: ½ doz. per box. Wt. per doz., 1¾ lbs.

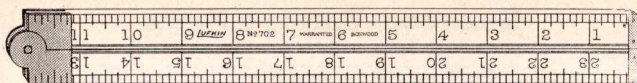


- No. 781C (62C) **Boxwood Caliper Rule. Two Foot. Four Fold.**  
**Full Bound**.....Per Doz. \$23.75  
 One inch wide. Square joint.  
 Marked: Rule, 8ths, 10ths, 12ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 Very practical and popular both as rule and caliper.  
 A caliper of good length, in a standard size 2-ft. rule  
 with both edges brass bound.  
 Packing: ½ doz. per box. Wt. per doz., 2¾ lbs.



- No. 862C (83C) **Boxwood Caliper Rule. Two Foot. Four Fold.**  
**Unbound**.....Per Doz. \$21.10  
 1⅜ inch wide. Arch joint. Edge plates.  
 Marked: Rule, 8ths, 10ths and 16ths inch.  
 Caliper, 16ths and 32nds inch.  
 Caliper slide of good range in a wide rule.  
 Packing: ½ doz. per box. Wt. per doz., 2¾ lbs.





## Manual Training Rule

No. 703 (18) Manual Training Boxwood Rule. Two Foot.....Per Doz. \$7.20

Two Fold. Unbound.  $1\frac{1}{2}$  inch wide. Square joint.

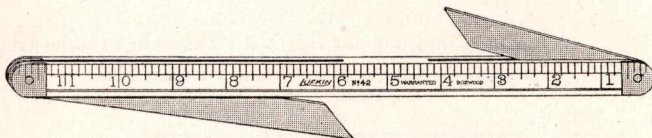
Marked: 8ths and 16ths inch.

Popular in manual training and vocational schools.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 2 lbs.

NOTES: For 1-ft. 1-piece manual training wood rules—See page 120.

For Manual Training Steel Rules—See page 135.



## Ship Carpenters Bevel

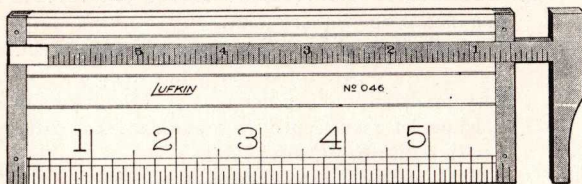
No. 42 Ship Carpenters Bevel. Boxwood. One Foot.....Per Doz. \$9.50

With two brass tongues or bevels, which fold into the rule.

$\frac{5}{8}$  inch wide. Rule marked 8ths and 16ths inch.

Well adapted to work such as that of ship carpenters.

Packing: 1 doz. per box. Wt. per doz., 2 lbs.



## Spoke Caliper Rule

No. 046 Spoke Caliper Rule. Boxwood. Six Inch.....Per Doz. \$25.00

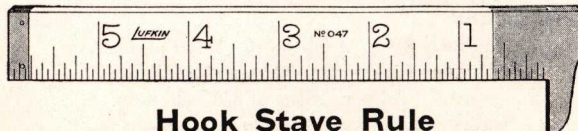
Two inches wide. Depth of caliper jaw  $1\frac{3}{8}$  inch.

Marked: Caliper and rule in 16ths inch.

A one-piece boxwood rule with brass caliper slide.

Designed to measure diameter of wood spokes for automobile and other wheels. This wide and sturdy caliper gage is useful in other fields also.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 2 lbs.



## Hook Stave Rule

No. 047 Hook Stave Rule. Boxwood. Six Inch.....Per Doz. \$11.50

Three-Quarter inch wide. Hook extends  $\frac{5}{8}$  inch.

Marked: Inches to 16ths, lower edge, both sides.

A one-piece boxwood rule with substantial brass hook at first end, brass cap at last end. Zero falls at inside of solid hook. This rule is designed to measure barrel staves, and is very handy also for other hook measuring.

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 1 lb.

## Section Five



**LUMBER RULES  
BILTMORE STICK  
BOOT CALKS**

**LOG CALIPERS  
MARKING STICK  
CALK SETS**

### **Et Cetera**

The name **LUFKIN** has been most closely associated with the making of Lumber Rules for well over half a century. Lumber Rules (also known as Board and Log Rules) are the original line of our manufacture. While other lines were added by us through the years, the Board and Log Rule Department is still one of our important Divisions.

Thus our Lumber Rules are the product of many years of experience and constant improvement and are most widely and favorably known.

The method of using these Rules is briefly stated here as there may be some unfamiliar with it and who have no experienced scaler at hand to consult.

#### **Scaling Boards:**

Board length is known at a glance. Lay the Board Rule across the board. Follow the tier of figures for that length board. In that tier, at the point where the width of the board comes, appears its scale in board feet.

#### **Scaling Logs:**

Log length is estimated. Apply the Log Rule across center of end of log. In the tier of figures for log of that length, at the point where diameter of the log comes, is found the board foot content of that log according to the scale used, be it Doyle, Scribner or other scale. (Most commonly the rule is applied to the small end of the log and reading taken inside both barks, but on these points practice varies greatly with taper and other characteristics of the logs, local custom, etc.)

The various log scales were built up over many years from experience with different varieties of timber, in the woods and at the mills. All log scaling is somewhat approximate. There is such great variation in the kinds, the nature and the grades of timber, in the taper, the crooks, defects, etc., in the logs, that it is not surprising there are so many log scales in existence and that they differ so greatly. However, there are but four that continue extensively in use, the Doyle, the Scribner, the Combination Doyle-Scribner and the Decimal C. The proper scale to be used and the method of use must be governed quite largely by the judgment of the scaler, by local custom or by agreement between buyer and seller.

A printed table giving values of a 16-foot log in twelve different log scales will be sent to interested parties on request.

The other items shown in this section of Catalog, enumerated top of this page, have for years been very well known among loggers and lumbermen.

Further General Information on Board and Log Rules—See page 116.  
Tree Tapes—See page 18.



## Hickory Board Rules

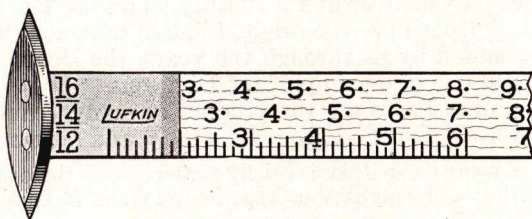
### General Description

Rule sticks riven from clear, second growth, white hickory. Properly air dried to retain life of the wood and make a tough, flexible rule. Skilfully formed and tapered to flex to the board and to handle nicely. Heads are steel cap brazed to brass shoulders and securely riveted to rule. Burned-in figures and markings, most permanent and prominent. Six-inch wedge handle, glued, riveted and rounded. Board lengths stamped into brass shoulders of head and burned into handle end of each rule. All rules well finished to resist dampness.

#### Select Hickory.

#### Burnt Figures and Markings.

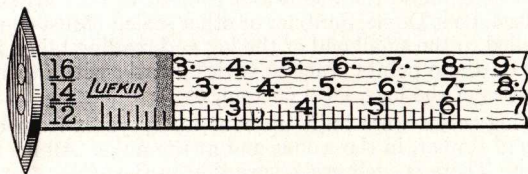
*All Rules On This Page Are Regularly Furnished Marked 8/18, Oval Head*  
6/16 or 12/22 marking furnished on any of them at no extra. Specify if wanted.  
Square Head furnished on any Rule on this page at no extra. Specify if wanted.



#### RULES 1 1/8 INCH WIDE

No.		Width	Tiers	Marked	Figured	Overall	Head	Per Doz.
1	Board Rule	1 1/8 in.	3	8/18	36 in.	42 in.	Oval	\$44.80
2	Board Rule	1 1/8 in.	3	8/18	30 in.	36 in.	Oval	41.60
2 1/2	Board Rule	1 1/8 in.	3	8/18	24 in.	30 in.	Oval	40.00
3	Board Rule	1 1/8 in.	3	8/18	30 in.	36 in.	Oval	38.40

(Head of No. 3 Rule has 1 1/2 inch brass shoulders; all others 2 inch.)  
Average weight per doz., 6 1/2 lbs.



#### NARROW RULES

No.		Width	Tiers	Marked	Figured	Overall	Head	Per Doz.
1N	Board Rule	1 in.	3	8/18	36 in.	42 in.	Oval	\$44.80
1XN	Board Rule	7/8 in.	3	8/18	36 in.	42 in.	Oval	44.80
2N	Board Rule	1 in.	3	8/18	30 in.	36 in.	Oval	41.60
2XN	Board Rule	7/8 in.	3	8/18	30 in.	36 in.	Oval	41.60

Average weight per doz., 6 lbs.

8/18 Rules measure one side 12, 14, 16; other side 8, 10, 18 foot lengths.  
12/22 Rules measure one side 12, 14, 16; other side 18, 20, 22 foot lengths.  
6/16 Rules measure one side 12, 14, 16; other side 6, 8, 10 foot lengths.

NOTES: At an extra charge these rules can be supplied with markings other than listed above.  
Rules Same as Above But with Half-Foot Marks—See page 109.  
Square Head—Illustrated page 110.

# Hickory Board Rules with Half-Foot Marks

**Extensively Used by Members of  
National Hardwood Lumber Association**

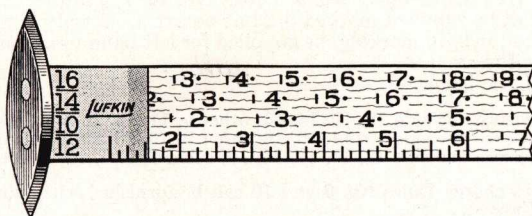
**Select Hickory.**

**Burnt Figures and Markings.**

(General Description—Top of Page 108)

Half-foot marks appear on all Rules shown on this page. The half feet are indicated by vertical dashes, the feet by dots. These rules are used by members of the above association and are coming more and more into general use, particularly by those who handle hardwoods.

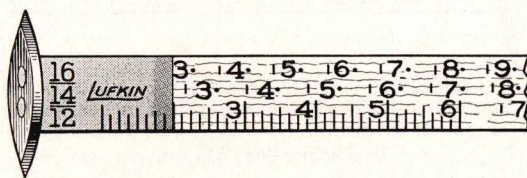
*All 3-Tier Rules on This Page Are Regularly Furnished Marked 8/18, Oval Head Rules 08 and 08N Are Marked with Even and Odd Lengths, 9/16 Feet, Oval Head 6/16 or 12/22 marking furnished on any 3-tier Rule at no extra. Specify if wanted. Square Head furnished on any Rule on this page at no extra. Specify if wanted.*



## RULES 11<sup>1</sup>/<sub>8</sub> AND 13<sup>1</sup>/<sub>16</sub> INCH WIDE, WITH HALF-FOOT MARKS

No.		Width	Tiers	Marked	Figured	Overall	Head	Per Doz.
01	Board Rule	11 <sup>1</sup> / <sub>8</sub> in.	3	8/18	36 in.	42 in.	Oval	\$48.00
02	Board Rule	11 <sup>1</sup> / <sub>8</sub> in.	3	8/18	30 in.	36 in.	Oval	44.80
08	Board Rule	13 <sup>1</sup> / <sub>16</sub> in.	4	9/16	30 in.	36 in.	Oval	44.80

Average weight per doz., 7 lbs.



## NARROW RULES WITH HALF-FOOT MARKS

No.		Width	Tiers	Marked	Figured	Overall	Head	Per Doz.
01N	Board Rule	1 in.	3	8/18	36 in.	42 in.	Oval	\$48.00
02N	Board Rule	1 in.	3	8/18	30 in.	36 in.	Oval	44.80
02XN	Board Rule	7/8 in.	3	8/18	30 in.	36 in.	Oval	44.80
02VN	Board Rule	3/4 in.	3	8/18	30 in.	36 in.	Oval	44.80
08N	Board Rule	1 in.	4	9/16	30 in.	36 in.	Oval	44.80

Average weight per doz., 6 lbs.

8/18 Rules measure one side 12, 14, 16; other side 8, 10, 18 foot lengths.

9/16 Rules measure one side 12, 10, 14, 16; other 9, 11, 13, 15 foot lengths.

12/22 Rules measure one side 12, 14, 16; other side 18, 20, 22 foot lengths.

6/16 Rules measure one side 12, 14, 16; other side 6, 8, 10 foot lengths.

NOTES: At an extra charge these rules can be supplied with markings other than listed above.  
Square Head—Illustrated on page 110.

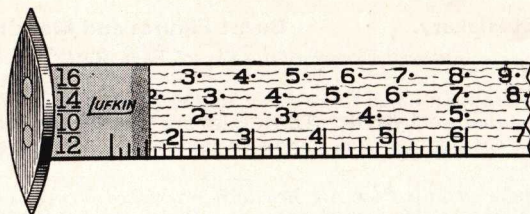


## Hickory Board Rules

Select Hickory.

Burnt Figures and Markings.

(General Description—Top of Page 108)



No.		Width	Tiers	Marked	Figured	Overall	Head	Per Doz.
8	Board Rule	1 $\frac{3}{16}$ in.	4	9/16★	30 in.	36 in.	Oval	\$41.60
10	Board Rule	1 $\frac{1}{2}$ in.	5	7/16	30 in.	36 in.	Oval	50.40

Weight per doz.: No. 8, 7 lbs.; No. 10 7  $\frac{1}{2}$  lbs.

★Rule No. 8 can be supplied marked 8/22 at no extra. Specify if wanted.

Rule No. 8 can, in 9/16 marking, be supplied for left hand use, at no extra.

Specify if wanted.

Square Head, see below.

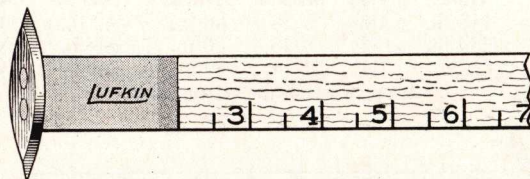
9/16 Rules measure one side 12, 10, 14, 16; other 9, 11, 13, 15 foot lengths.

8/22 Rules measure one side 12, 14, 16, 18; other 8, 10, 20, 22 foot lengths.

7/16 Rules measure one side 12, 13, 14, 15, 16; other 7, 8, 9, 10, 11 foot lengths.

NOTES: At an extra charge Rules No. 8 and 10 can be furnished with markings other than listed above.

Four-Tier Rules with Half-Foot Marks—See Nos. 08 and 08N, page 109.

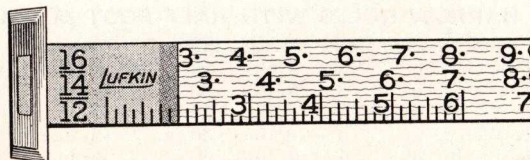


No. 50 Export Rule. Width: 1 inch. Oval Head.....Per doz. \$41.60

Marked both sides in inches and half inches only

Figured: 30 inches. Overall length: 36 inches

Weight per doz., 5  $\frac{1}{2}$  lbs.



Board Rule Square Head is here shown. It differs from Oval Head only in the shape of the cap. Square Head can be furnished, at no extra charge, on any of our Board Rules or Combination Board and Log Rules, pages 108 to 111. Oval Head is much more popular and is regularly furnished. While we stock Square Head Board Rules, we supply them only when orders so specify.

## Spring Steel Board Rule

Dull Nickel Plated Finish



Extra durable yet of medium weight. Made of best quality spring tempered steel, this Rule bends nicely to the board yet returns straight and holds its shape well. Figures and markings are sunken and black, most permanent and easy to read against the dull nickel plated finish of the rule, which finish also resists rust. Rule has leather slide for handling the blade. It has round wood handle, 6 inches long. Head and handle are very securely attached.

No. 52 Steel Board Rule. 3-tier. Width: 1 inch. Oval Head.

Marked: 8/18. One side 12, 14, 16; other side 8, 10, 18 ft. lengths.

Figured: 30 inches. Overall length: 36 inches. Wt. per doz., 15 lbs.

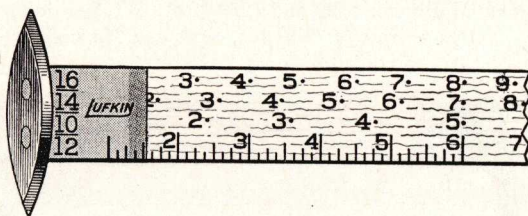
Price per doz. \$100.80

(Can also be supplied with Square Head; also with 12/22 marking)

## Combination Board and Log Rules

Select Hickory.

Burnt Figures and Markings.



Flexible Hickory Rules, exactly same as standard Board Rules, except carrying both board measure and log scale. While these Combination Rules are carried in stock only in Doyle Log Scale, they can, without extra charge, be supplied also in the other Scales mentioned below.

One side marked in standard board measure for 12, 10, 14 and 16 foot boards. Other side marked in log scale for 12, 10, 14 and 16 foot logs.

No.	Width	Tiers	Log Scale	Figured	Overall Length	Head	Per Doz.
13	1¼ in.	4	Doyle	30 in.	36 in.	Oval	\$47.20
13½	1¼ in.	4	Doyle	36 in.	42 in.	Oval	50.40

Weights per doz. 7 and 7½ lbs.

Doyle is furnished unless other Log Scale is specified.

Other Log Scales supplied: Scribner. Doyle-Scribner. Decimal C.

Square Head—Price same as regular Oval Head. Specify if wanted.

Special Markings—Can be supplied on these Combination Rules at an extra charge.



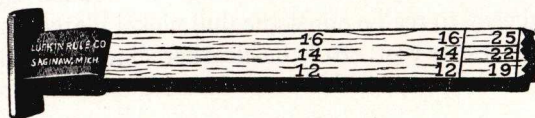
## Hickory Log Rules

### General Description

Our Log Rule Sticks are riven from selected, second growth, white hickory, clear tough stock. They are air dried to retain the life of the wood. All handles are of the wedge type, nicely formed. Dimensions of all, except the square and full flexible Log Rules, are approximately  $1\frac{1}{8} \times \frac{1}{4}$  inch. The figures are large and, together with the lines, etc., are burned-in, making them permanent and easy to read. The heads are strong, well proportioned and securely attached. All Rules are well finished to resist dampness, etc.

#### Select Hickory.

#### Burnt Figures and Lines.



No. 14 Square Head Log Rule.....Per doz. \$44.80

Figured: 48 inches. Overall length: 56 inches.

Regular Scales: Doyle. Scribner. Doyle-Scribner.

Decimal C. Minnesota Standard.

Regular Markings: 8/20 and 12/24 feet.★ Wt. per doz.,  $10\frac{1}{2}$  lbs.

*Always Specify: Number, Scale and Marking*

★In Minnesota Standard regular marking is 12/22.

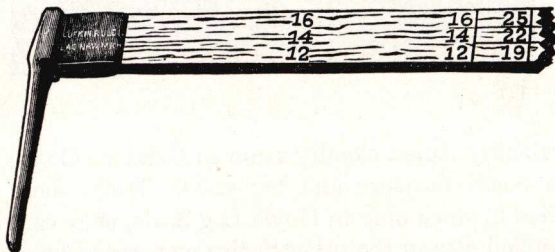
No. 15 Square Head Log Rule.....Per doz. \$38.40

Figured: 36 inches. Overall length: 42 inches.

Regular Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.

Regular Markings: 8/20 and 12/24 feet. Wt. per doz.,  $8\frac{1}{2}$  lbs.

*Always Specify: Number, Scale and Marking*



No. 16 Hook Log Rule. Hook extends  $3\frac{3}{4}$  inches.....Per doz. \$44.80

Figured: 48 inches. Overall length: 56 inches.

Regular Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.

Regular Markings: 8/20 and 12/24 feet. Wt. per doz.,  $11\frac{1}{2}$  lbs.

*Always Specify: Number, Scale and Marking*

8/20 Rules carry log lengths 8, 10, 12, 14, 16, 18 and 20 feet, and one row of inches.

12/24 Rules carry log lengths 12, 14, 16, 18, 20, 22 and 24 feet, and one row of inches.

Both have 3 tiers of figures on each side and one tier on each edge.

NOTES: Scribner-Doyle and Decimal A or B Scale Rules also furnished; no extra charge.

Rules on this page in log scales other than regular or marked for lengths other than 8/20 or 12/24, supplied at extra charge.

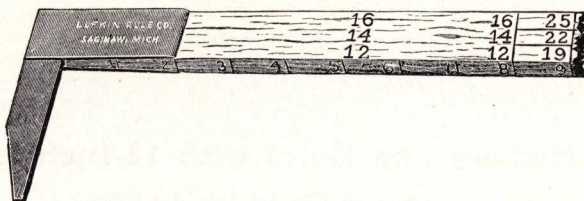
Tree Tapes—See page 18.

# Hickory Log Rules

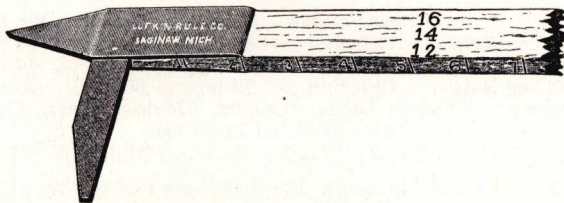
Select Hickory.

Burnt Figures and Lines.

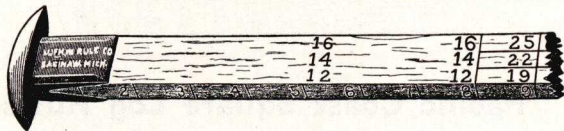
(General Description—Top of Page 112)



- No. 16 $\frac{1}{2}$**  Flat Hook Log Rule. Hook extends 3 $\frac{1}{2}$  inches. . . . . Per doz. \$47.20  
 Figured: 48 inches. Overall length: 56 inches.  
 Regular Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.  
 Regular Markings: 8/20 and 12/24 feet. Wt. per doz., 11 lbs.  
*Always Specify: Number, Scale and Marking*  
 (Same Rule with 12-inch hook, see No. 1604, page 114)



- No. 21** Pick and Hook Head Log Rule. Hook extends 3 $\frac{1}{2}$  inches. . . Per doz. \$48.00  
 Figured: 48 inches. Overall length: 56 inches.  
 Regular Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.  
 Regular Markings: 8/20 and 12/24 feet. Wt. per doz., 11 lbs.  
*Always Specify: Number, Scale and Marking*



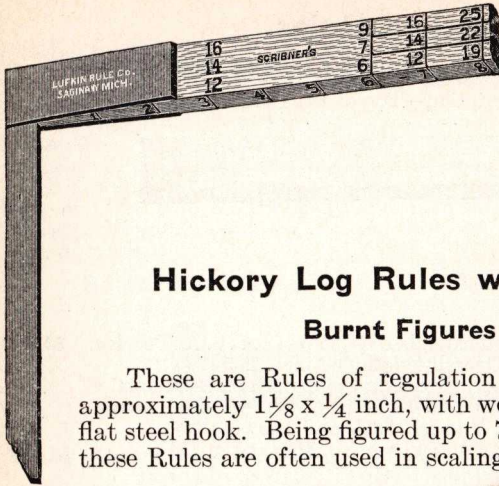
- No. 22** "T" Head Log Rule. (Wisconsin Pattern.) . . . . . Per doz. \$44.80  
 Figured: 48 inches. Overall length: 56 inches.  
 Regular Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.  
 Regular Markings: 8/20 and 12/24 feet. Wt. per doz., 10 $\frac{1}{2}$  lbs.  
*Always Specify: Number, Scale and Marking*

- No. 22 $\frac{1}{2}$**  "T" Head Log Rule. (Wisconsin Pattern.) . . . . . Per doz. \$38.40  
 Figured: 36 inches. Overall length: 42 inches.  
 Regular Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.  
 Regular Markings: 8/20 and 12/24 feet. Wt. per doz., 8 lbs.  
*Always Specify: Number, Scale and Marking*

8/20 and 12/24 Markings. For details see foot of page 112.

**NOTES:** Scribner-Doyle and Decimal A or B Scale Rules also furnished; no extra charge.  
 U. S. Forest Service pattern head can also be supplied. This is a flat steel head extending one-half inch from each edge of rule.  
 Price: 48 inch Rule, same as Rule No. 22; 36 inch, same as No. 22 $\frac{1}{2}$ .  
 Rules on this page in log scales other than regular or marked for lengths other than 8/20 or 12/24, supplied at extra charge.





## Hickory Log Rules with 12-Inch Hook

### Burnt Figures and Lines

These are Rules of regulation pattern and dimensions, i.e., approximately  $1\frac{1}{8} \times \frac{1}{4}$  inch, with wedge handle and with extra long flat steel hook. Being figured up to 72 inches and having long hook, these Rules are often used in scaling logs of large diameter.

No.		Hook Extends	Figured	Overall	Wt. Doz.	Per Doz.
1604	Flat Hook Log Rule	12 inches	48 in.	56 in.	14 lbs.	\$53.40
1605	Flat Hook Log Rule	12 inches	60 in.	68 in.	17 lbs.	60.00
1606	Flat Hook Log Rule	12 inches	72 in.	80 in.	20 lbs.	68.00

Regular Scales on all above: Doyle, Scribner, Doyle-Scribner. Decimal C.  
Regular Markings on all above: 8/20 and 12/24 feet.

*Always Specify: Number, Scale and Marking*

8/20 and 12/24 Markings. For details see foot of page 112.

NOTE: Above Rules in log scales other than regular or marked for lengths other than 8/20 or 12/24, supplied at extra charge.



## Pacific Coast Square Log Rules

### For Large Timber. Burnt Figures and Lines.

Rules  $\frac{7}{8}$  inch square fitted with substantial steel hook extending 12 inches (Seattle pattern hook). These are extra sturdy rules. They are figured full length and regularly marked in Scribner Scale only and for even length logs from 20 to 48 feet and with one row of inches (4 tiers on each side). They are designed for scaling long logs of large diameter, and are most used on the Pacific Coast of North America.

No.		Scale	Marked	Figured	Per Doz.
1705	Seattle Hook Log Rule	Scribner	20/48	Full length, 60 inches	\$108.00
1706	Seattle Hook Log Rule	Scribner	20/48	Full length, 72 inches	116.80

Weight per doz.: No. 1705, 24 lbs.; No. 1706, 28 lbs.

NOTE: For Pacific Coast Log Rules marked other than Scribner 20/48, an extra charge is made.

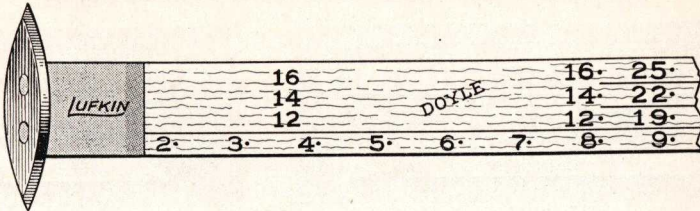


## Flexible Hickory Log Rules

### Board Rule Pattern

Select Hickory.

Burnt Figures and Lines.



These are tapered and flexible, same as Board Rules, but carry regular log scale markings. All have board rule style 6-inch wedge handle. Nos. 29 and 30 are regularly furnished with oval head, yet can at same price be supplied with square head. Nos. 27 and 28 are without head, simply having brass cap instead. All have prominent and permanent, burned-in figures, etc. All have 4 tiers on each side and are regularly marked 12/24, i.e., one side inches and log scale for 12, 14 and 16 foot, other side for 18, 20, 22 and 24 foot logs. Flexible Log Rules are carried in stock only in 12/24 marking and only in Doyle, Scribner, Doyle-Scribner and Decimal C Log Scales.

*Always Specify Log Scale in Addition to Stock Number*

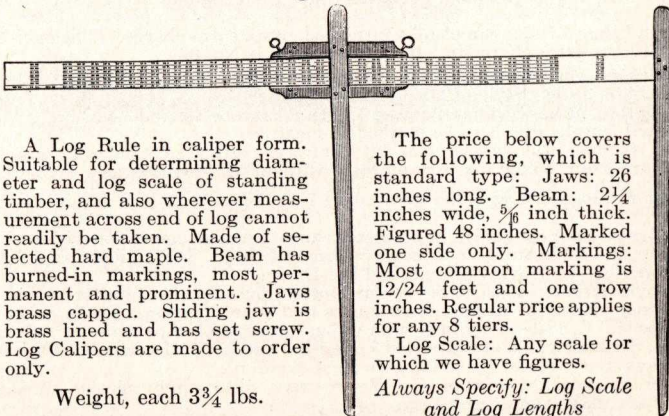
No.		Width	Marked	Figured	Overall	Head	Per Doz.
29	Flexible Log Rule	1 1/4 in.	12/24	36 in.	42 in.	Oval	\$68.00
30	Flexible Log Rule	1 1/4 in.	12/24	42 in.	48 in.	Oval	70.40
27	Flexible Log Rule	1 1/4 in.	12/24	36 in.	42 in.	Cap Only	62.40
28	Flexible Log Rule	1 1/4 in.	12/24	42 in.	48 in.	Cap Only	64.80

Average wt. per doz., 7 lbs.

NOTE: Flexible Log Rules in other scales, or in log lengths other than mentioned above, but having not over 8 tiers, no extra charge.

## Log Caliper

### Burnt Figures and Lines



A Log Rule in caliper form. Suitable for determining diameter and log scale of standing timber, and also wherever measurement across end of log cannot readily be taken. Made of selected hard maple. Beam has burned-in markings, most permanent and prominent. Jaws brass capped. Sliding jaw is brass lined and has set screw. Log Calipers are made to order only.

Weight, each 3 3/4 lbs.

The price below covers the following, which is standard type: Jaws: 26 inches long. Beam: 2 1/4 inches wide, 5/16 inch thick. Figured 48 inches. Marked one side only. Markings: Most common marking is 12/24 feet and one row inches. Regular price applies for any 8 tiers.

Log Scale: Any scale for which we have figures.

*Always Specify: Log Scale and Log Lengths*

No. 25 Log Caliper. (Standard type, 8 tier, figured 48 inches.).....Each \$40.00  
Most common Log Scales: Doyle. Scribner. Doyle-Scribner. Decimal C.

NOTES: Caliper marked inches only. Price same as above.

Calipers with more than 8 tiers or with beam over 48 inches long, prices on application.  
Tree Tapes—See page 18.



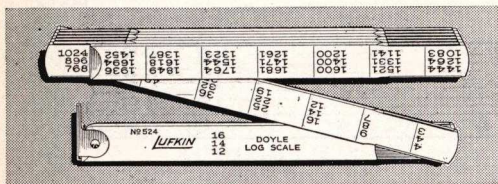
## Spring Joint Log Rule

Doyle Scale.

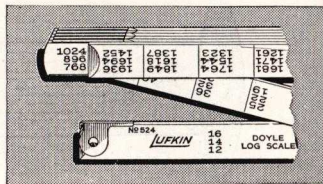
Six-inch Sections.

Folding Hook.

Suitable Both for Scaling Logs and Common Measuring



Hook Open



Hook Closed

This pocket size 4-foot folding rule is quite extensively used, because it serves these two purposes and is light weight and convenient to carry.

It bears Doyle Scale values for logs 10 to 18 feet long and up to 48 inches in diameter and, applied to the log, gives the same board foot results as standard type hickory log rules. However it is not as durable and is not offered as a substitute for such rules in steady scaling.

It is same pattern and will do the same common measuring as folding wood rules used by carpenters and others. It has concealed joints and 6-inch hardwood sections,  $\frac{5}{8}$  inch wide. It is yellow enameled and has brass plated mountings and patented lock joints. The folding end hook serves as log rule head and is handy also in all measuring.

*Furnished Only in Doyle Log Scale*

Marked outside for 10 and 18 ft. logs and, on lower edge, inches to 16ths.

Marked inside for 12, 14 and 16 foot logs.

No. 524 Spring Joint Doyle Log Rule.....Per doz. \$5.40

Packing:  $\frac{1}{2}$  doz. per box. Wt. per doz., 2 lbs.

### Miscellaneous Information on Board and Log Rules

Regular catalogued Board Rules give content of 1-inch (i.e.,  $\frac{4}{4}$ ) lumber in board feet.  $\frac{5}{4}$ ,  $\frac{6}{4}$  and  $\frac{8}{4}$  Board Rules we can supply at an extra charge.

Board Rules marked for board lengths other than regular we can supply at an extra charge.

Left hand Board Rules can also be furnished, at an extra charge. (The only Board Rule we supply without extra charge in left hand marking is No. 8.)

In ordering special Board Rules it is necessary always to specify:

Width of Rule. Style of head, oval or square.

Length of Rule with handle; also length it is to be figured.

Board lengths rule is to be marked to measure.

(Unless otherwise specified it is always assumed special rules are to measure 1-inch lumber and to be without half-foot marks.)

Regular catalogued Log Rules give board foot contents of logs according to the scale selected.

All Scales that are regular on Log Rules are mentioned in connection with each rule listed in this catalog, and these are the only scales extensively used. Most widely used of these is the Doyle, followed by the Doyle-Scribner and the Decimal C.

The Doyle-Scribner consists of regular Doyle values for all diameters up to 29 inches, regular Scribner values for diameters 29 inches and over. (Scribner-Doyle Scale is just the reverse.) Decimal C Scale is Scribner with the units dropped, showing only the nearest tens. For example, Scribner value of 872 would appear on rule as 87. Decimal C is the standard of the U. S. Forest Service and the Wisconsin legal standard.

Of other log scales there are many. We are prepared to supply rules in quite a number of them. For such there is an extra charge.

The same is true of Log Rules marked for odd and unusual log lengths.

Log Rules marked inches only, both sides, can be supplied at no extra charge.

In ordering special Log Rules it is necessary always to specify:

Stock Number (this covers style and length of rule wanted).

Log lengths Rule is to be marked to measure.

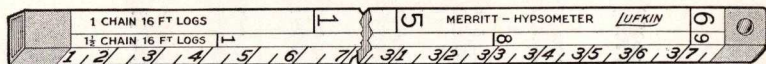
Log Scale.



## Biltmore or Forest Cruiser Stick

(MERRITT HYPSONETER)

Gives Height and Diameter of Standing Trees  
Burnt Figures and Markings



Used by the U. S. Forest Service, the Indian Service, by forestry schools, rangers and others in estimating timber tracts, etc. This Stick carries 25-inch reach Biltmore Scale for determining diameter, Merritt Hypsoneter Scale for determining height, Scribner Decimal C Scale values for 16-foot log, and, on the sloping face, 37 standard inches to halves.

All figures and markings are deeply burned, hence most permanent and prominent. Stick is of selected hard maple, well finished to resist dampness, etc. It is  $38\frac{3}{4}$  inches long,  $\frac{1}{2}$  inch thick, greatest width 1 inch. At each end there is a heavy brass ferrule. Last end has corners rounded and smoothly reamed hole for thong. Directions for use, as below, packed with each Stick.

No. 55 Biltmore or Forest Cruiser Stick. Wt. each 10 ozs. . . . . Price, each \$6.00

### Directions for Use

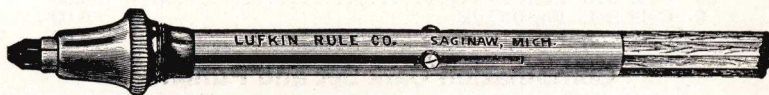
**Biltmore Scale**—To Determine Diameter. User stand erect, face the tree, hold Stick horizontally in front of himself, chest high, with sloping face touching tree, 25 inches from the eye. (This distance can be regulated by knotted string.) Use one eye only and do not move head while measuring. Bring left end of Stick to point where line of sight intersects left side of tree. At point on Stick where line of sight intersects right side of tree, figure represents the diameter.

**Hypsoneter**—To Determine Height. User stand at one chain (66 feet), or  $1\frac{1}{2}$  chains (99 feet) from tree. These distances can be closely enough be determined by pacing. Hold Stick vertically and raise it until lower end intersects stump height. Read on proper scale the figure intersected by top of last log, which is number of 16-foot logs in the tree.

NOTES: Tree Tapes—See page 18.

Topographic Trailer Tape—See page 48.

## Marking Stick for Lumber Crayons



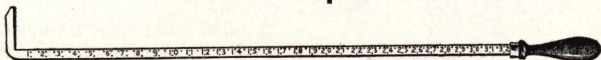
A convenient holder adapted to regular lumber crayons. Holder is of brass, nickel plated; 30-inch handle is of wood, well finished. Crayon is held firmly by means of screw cap together with slide with set screw backing it up at any length extended.

Marking Stick Complete (Crayon Holder with handle, 36 in. long) . . . Per doz. \$48.00

Crayon Holder Only (without handle) . . . . . Per doz. 32.00

Weight per doz.: Stick Complete, 8 lbs. Crayon Holder, 3 lbs.

## Brass Dip Rod

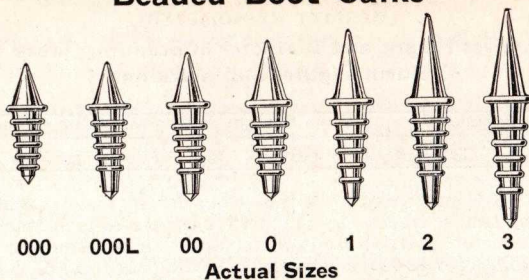


For measuring diameter of logs, especially when logs are lying in water. Made of hard brass,  $\frac{3}{8} \times \frac{3}{16}$  inch, well finished. Has  $1\frac{1}{2}$  inch hook and wood handle. Plainly marked on the two sides, 32 inches to half-inches. Overall length, 38 inches.

Brass Dip Rod. Wt. per doz., 12 lbs. . . . . Price, per doz. \$72.00



## Beaded Boot Calks



Actual Sizes

For log drivers boots. Forged from best quality crucible steel. All have point, shank, shoulder and beads well proportioned and formed so as to set and hold well. No. 000L is same as No. 000 except having longer shank.

No.		Weight, per 1,000	Price, per 1,000
000	Boot Calk. ....	2 $\frac{7}{8}$ lbs.	\$7.30
000L	Boot Calk. ....	3 $\frac{1}{4}$ lbs.	7.30
00	Boot Calk. ....	3 $\frac{1}{2}$ lbs.	7.30
0	Boot Calk. ....	4 lbs.	7.30
1	Boot Calk. ....	5 $\frac{1}{8}$ lbs.	7.30
2	Boot Calk. ....	5 $\frac{1}{4}$ lbs.	7.30
3	Boot Calk. ....	6 $\frac{1}{4}$ lbs.	7.30

Packing: 100 per box, 1,000 per carton  
(Except No. 3, which is 50 per box, 500 per carton)

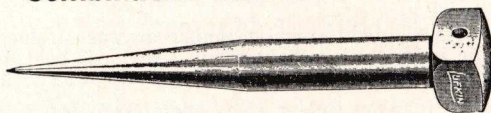
## Boot Calk Sets



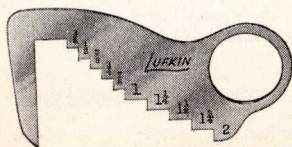
Hexagon in shape and of high grade hardened steel. Hole tapered and reamed to fit point and shoulder of Calk. Overall length: 4 $\frac{1}{2}$  inches. Diameter:  $\frac{1}{2}$  inch.

No.		Price, Per Doz.
000	Calk Set. For 000 and 000L Calks. ....	\$6.00
00	Calk Set. For 00 Calk. ....	6.00
0	Calk Set. For 0 Calk. ....	6.00
1	Calk Set. For 1, 2, and 3 Calks. ....	6.00

## Combination Calk Set and Punch



Round, with square head. Made of high grade hardened steel.  
No. 7 Calk Set and Punch. Length: 4 inches. .... Per doz. \$7.00



## Lumber Gages

A substantial Gage for measuring thickness of lumber. Made of brass, nickel plated.

No.		For Measuring Thicknesses	Per Doz.
00	Lumber Gage.	$\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1, 1 $\frac{1}{4}$ , 1 $\frac{1}{2}$ , 1 $\frac{3}{4}$ and 2 inch. ....	\$10.50
000	Lumber Gage.	$\frac{5}{8}$ , $\frac{3}{4}$ , 1, 1 $\frac{1}{4}$ , 1 $\frac{1}{2}$ , 2 and 2 $\frac{1}{2}$ inch. ....	14.00

## Section Six



### MISCELLANEOUS WOOD RULES, SQUARES, ETC.

#### FOLDING STEEL AND BRASS RULES

#### MISCELLANEOUS STEEL AND BRASS RULES

This section embraces the following varied assortment of Rules and Measuring Devices, many of which are in common use. They are catalogued in the order here listed:

Flat Wood Bench Rules.

Manual Training Wood Rules.

Boxwood Shrink Rules.

Extension Rules (sectional).

Yard and 1 $\frac{1}{4}$ -Yard Sticks

Tailors Measuring and Curve  
Sticks.

Tailors and Dressmakers Squares.

Tailors and Dressmakers Tapes.

Meter Sticks.

Shoe Size Sticks.

Freight Rules.

Barrel Gaging and Wantage Rods.

"Perfection" Glass Boards.

Glass Cutters and Glaziers Rules.

Glass Cutters "L" and "T"  
Squares.

Folding Steel Rules (1 to 8 ft.).

Folding Brass Rules.

Blacksmiths Hook Rule.

Counter Rules.

Manual Training Steel Rules.

Steel Bench Rules (1 to 8 ft.).

Tinners Steel Circumference Rules.

"Magic" Pattern Rule.

*Certain of these lines are stocked by hardware  
and tool stores; all are obtainable through them.*

"Perfection" Glass Boards, Glass Cutters Rules and Squares are handled extensively also by distributors of glass and supplies for that trade.

Tailors Squares, Rules, Curve Sticks and Tailors Tapes are another of our complete lines, high grade and most widely and favorably known in the tailoring and dressmaking trades. They are stocked by the tailor trimming houses in all centers.

Some of the other items sold largely through distributors specializing to individual lines of trade are the following:

Manual Training Wood and Steel Rules.....By school supply houses.

Shrink Rules.....By dealers in patternmakers and foundry supplies.

Gaging and Wantage Rods.....By brewers and bottlers supply houses.

Meter Sticks, Yard Sticks, etc.....By technical supply houses.

Shoe Size Sticks.....By distributors of shoe findings.

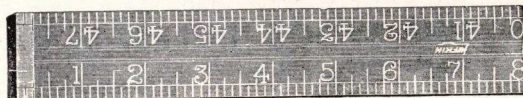
Tinners and "Magic" Rules.....By dealers in sheet metal workers tools.



## Flat Wood Rules

### Bench Rules for Shop, Factory and Other Uses

Popular with Cutters of Automobile and Upholstery  
Fabrics, Trimmers, Saddlers, and Other Mechanics



High grade, one-piece, polished hard maple Bench or Table Rules. Made of selected stock, properly seasoned and well finished. Stamped lines and figures, clear-cut and black, permanent and easy to read. Wherever many long measurements are taken with a rule, these longer rules save much time as compared with yard sticks. Graduated both edges of both sides, with zero falling at reverse ends, and figures placed as illustrated above, these rules are easily read from either side of bench and can most quickly be brought to the work in any position.

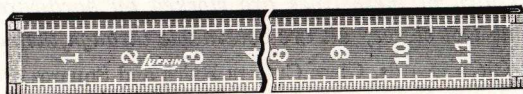
The bound rules have brass binding entire length of both edges, securely attached. They are best for cutting or wherever rule is subject to much wear.

#### Marked Both Sides, Both Edges; One Side 8ths, Other Side 16ths Inch

No.	Length		Dimensions	Wt. Doz.	Per Doz.
<b>7131</b>	24 inch.	Brass Capped	$1\frac{1}{2} \times \frac{3}{16}$ inch	2 $\frac{1}{4}$ lbs.	\$ 7.20
<b>7132</b>	36 inch.	Brass Capped	$1\frac{1}{2} \times \frac{3}{16}$ inch	3 $\frac{1}{4}$ lbs.	9.60
<b>7133</b>	48 inch.	Brass Capped	$1\frac{1}{2} \times \frac{1}{4}$ inch	5 $\frac{1}{2}$ lbs.	13.20
<b>7134</b>	60 inch.	Brass Capped	$1\frac{1}{2} \times \frac{1}{4}$ inch	6 $\frac{3}{4}$ lbs.	16.80
<b>7135</b>	72 inch.	Brass Capped	$1\frac{1}{2} \times \frac{1}{4}$ inch	8 lbs.	21.00
<b>7131<math>\frac{1}{2}</math></b>	24 inch.	Full Brass Bound	$1\frac{1}{2} \times \frac{3}{16}$ inch	3 $\frac{1}{4}$ lbs.	24.00
<b>7132<math>\frac{1}{2}</math></b>	36 inch.	Full Brass Bound	$1\frac{1}{2} \times \frac{3}{16}$ inch	5 $\frac{1}{4}$ lbs.	33.00
<b>7133<math>\frac{1}{2}</math></b>	48 inch.	Full Brass Bound	$1\frac{1}{2} \times \frac{1}{4}$ inch	9 lbs.	42.00
<b>7134<math>\frac{1}{2}</math></b>	60 inch.	Full Brass Bound	$1\frac{1}{2} \times \frac{1}{4}$ inch	10 $\frac{1}{2}$ lbs.	54.00
<b>7135<math>\frac{1}{2}</math></b>	72 inch.	Full Brass Bound	$1\frac{1}{2} \times \frac{1}{4}$ inch	13 $\frac{1}{2}$ lbs.	66.00

NOTE: Glass Cutters Flat Wood Rules—See page 130.

## Manual Training Bench Rules



One-foot, one-piece wood rules, popular in school woodworking shops. Made of select stock, properly seasoned and well finished. Stamped lines and figures, clear-cut and black, permanent and easy to read. Inches both sides numbered vertically reading from top to bottom, with prominent figures, as illustrated above. Opposite sides read from reverse ends.

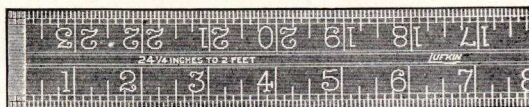
#### Marked Both Sides, Both Edges; One Edge 8ths, Other Edge 16ths Inch

No.		Length	Dimensions	Wt. Doz.	Per Doz.
<b>341<math>\frac{1}{4}</math></b>	Maple Rule	1-foot.	$1\frac{1}{8} \times \frac{3}{16}$ inch	1 lb.	\$5.30
<b>341<math>\frac{1}{2}</math></b>	Boxwood Rule	1-foot.	$1\frac{1}{8} \times \frac{3}{16}$ inch	1 lb.	6.60

NOTES: Steel Rules for Manual Training Use—See Nos. 60 and 62, page 135.  
Folding Wood Rule for School Use—See No. 703, page 106.

## Boxwood Shrink Rules

Two Foot. Brass Capped.



Patterns for metal castings are oversize, to allow for shrinkage in cooling. As shown by table below, this shrinkage varies with different metals. On the rules here listed shrinkage allowance is included in all measurements throughout. Example: Rule No. **8205** is  $24\frac{1}{4}$  inches long, divided into 24 equal parts, each part subdivided to 8ths or 16ths.

Boxwood Shrink Rules are suitable for rough work. Machine divided Steel Shrink Rules, shown page 233, being more durable and finely graduated, are more extensively used and should always be employed on close work.

These Shrink Rules are of genuine boxwood, properly seasoned and well finished. They have clear-cut, black lines and figures, durable and easy to read. All are 2-foot rules,  $1\frac{1}{2}$  inch wide,  $\frac{1}{8}$  inch thick, and with ends brass capped.

### Marked Both Sides, Both Edges; One Side 8ths, Other Side 16ths Shrinkage Inch

No. <b>8203</b>	Shrinkage $\frac{1}{10}$ inch per foot	Per doz.	\$22.00
No. <b>8205</b>	Shrinkage $\frac{1}{8}$ inch per foot	Per doz.	22.00
No. <b>8206</b>	Shrinkage $\frac{3}{16}$ inch per foot	Per doz.	22.00
No. <b>8207</b>	Shrinkage $\frac{1}{4}$ inch per foot	Per doz.	22.00
No. <b>8208</b>	Shrinkage $\frac{5}{16}$ inch per foot	Per doz.	22.00
No. <b>8209</b>	Shrinkage $\frac{3}{8}$ inch per foot	Per doz.	22.00

Weight per doz.,  $2\frac{1}{4}$  lbs.

Packing:  $\frac{1}{2}$  doz. per box

### Average Shrinkage of Castings

Metal	Shrinkage Per Foot	Metal	Shrinkage Per Foot
Cast Iron	$\frac{1}{8}$ inch	Aluminum	$\frac{3}{16}$ inch
Malleable Iron	$\frac{1}{8}$ inch	Copper	$\frac{3}{16}$ inch
Steel	$\frac{1}{4}$ inch	Lead	$\frac{5}{16}$ inch
Brass	$\frac{3}{16}$ inch	Zinc	$\frac{5}{16}$ inch

NOTE: Steel Shrink Rules—See page 233

## Extension Rules



Two-section sliding rules used in measuring from floor to ceiling, across large openings, etc. Made of polished hard maple, with brass plated clamps. Sections 1 inch wide,  $\frac{3}{8}$  inch thick, with stop at both ends, so they cannot fall apart. Rules have tension spring and set screw, securely holding the sections when closed or extended to any distance. Clear-cut, black lines and figures. Ends brass covered.

### Marked Feet, Inches and 8ths, Both Sides

No.	Length, Extended	Length, Closed	Wt. Per Doz.	Per Doz.
<b>7162</b>	4 feet	2 feet	$6\frac{1}{2}$ lbs.	\$21.20
<b>7163</b>	6 feet	3 feet	$8\frac{1}{2}$ lbs.	24.30
<b>7164</b>	8 feet	4 feet	11 lbs.	27.20
<b>7165</b>	10 feet	5 feet	14 lbs.	33.40
<b>7166</b>	12 feet	6 feet	$16\frac{1}{2}$ lbs.	42.50

NOTE: Six-foot Folding Wood Rules with Extension Slide—See page 93.  
Six-foot Extension Steel Tape-Rule—See page 84.



## Yard Sticks

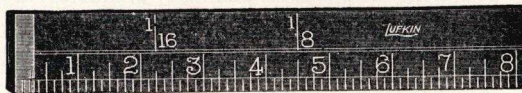
High grade Hardwood Yard Sticks, well finished in the natural wood. All have clear-cut, black lines and figures, easy to read and most permanent.



### Marked Both Sides, Reading from Same End

One side lower edge inches to 8ths; other side fractions of yards

No.		Material	Ends	Dimensions	Wt. Doz.	Per Doz.
7121	Yard Stick	Maple	Plain	1 x 1/4 inch	2 3/4 lbs.	\$ 4.50
7122	Yard Stick	Maple	Brass Capped	1 x 1/4 inch	2 3/4 lbs.	6.30
7422	Yard Stick	Hickory	Brass Capped	7/8 x 3/8 inch	2 1/2 lbs.	10.00
			Flexible and with Rounded Edges..			



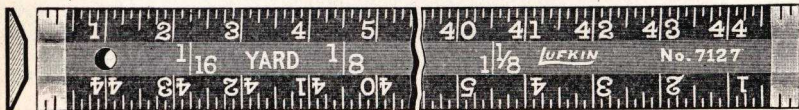
### Marked Both Sides, Reading from Reverse Ends

Lower edge inches to 8ths, upper edge fractions of yards

No.		Material	Ends	Dimensions	Wt., Doz.	Per Doz.
7116	Yard Stick	Maple	Brass Capped	1 1/4 x 3/8 inch	2 3/4 lbs.	\$7.80
7129	Yard Stick	Maple	Brass Capped	1 1/4 x 5/8 inch	4 1/2 lbs.	9.60

NOTES: Brass Counter Rules, 3-ft., For Store Use—See page 135.  
Wood Bench Rules, 24 to 72-inch—See page 120.

## Beveled Yard and 1 1/4 Yard Sticks Metric-English Beveled Sticks



Popular in the tailoring and dressmaking trades and other places for laying out, cutting, etc. Beveled both edges of one side, so markings come close down to the work. Lines and figures are clear-cut and black, most permanent and easy to read. All are of selected hard maple, smooth and well finished in the natural wood; width 1 1/2 inch, thickness 5/8 beveled to 1/8 inch. Hole at one end for hanging. All are marked on beveled side only. No. 7128 has take-down brass joint with set screw threading entirely through it.

### Marked English Only

On both bevels, inches to 8ths; down center, fractions of yards

No. 7124	Yard Stick.	Plain Ends.....	Per doz.	\$ 7.20
No. 7125	Yard Stick.	Brass Tipped Ends.....	Per doz.	10.80
No. 7126	1 1/4 Yard Stick (45 inch).	Plain Ends.....	Per doz.	7.80
No. 7127	1 1/4 Yard Stick (45 inch).	Brass Tipped Ends.....	Per doz.	12.00
No. 7128	1 1/4 Yard Stick (45 inch).	Two-Piece, Jointed. Brass Tipped Ends.....	Per doz.	48.00

### Marked Metric and English

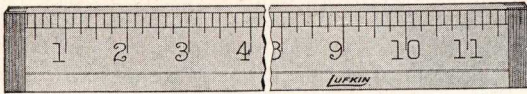
On upper bevel, inches to 16ths; lower bevel, metric to half-centimeters

No. 7126ME	120 Centimeter Stick.	Plain Ends.....	Per doz.	\$18.00
No. 7127ME	120 Centimeter Stick.	Brass Tipped Ends.....	Per doz.	21.00

Average weight per doz., 5 lbs.



## Tailors Measuring Sticks



Used in the tailoring trades and schools. Popular priced, smooth, hard maple rules,  $1\frac{1}{4} \times \frac{3}{16}$  inch, in natural finish, with plain black markings. Marked both sides upper edge inches and 8ths; opposite sides reading from reverse ends.

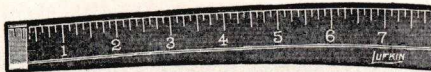
*Specify Length as Well as Stock Number*

No. 7030	12 inch.	Tailors Stick.	Brass Capped Ends.....	Per doz.	\$4.80
No. 7030	24 inch.	Tailors Stick.	Brass Capped Ends.....	Per doz.	6.00
No. 7030	36 inch.	Tailors Stick.	Brass Capped Ends.....	Per doz.	7.60
No. 7031	12 inch.	Tailors Stick.	Plain Ends.....	Per doz.	3.30
No. 7031	24 inch.	Tailors Stick.	Plain Ends.....	Per doz.	4.80
No. 7031	36 inch.	Tailors Stick.	Plain Ends.....	Per doz.	6.40

Weights per doz., 1, 2 and 3 lbs. respectively

NOTE: See also Yard and  $1\frac{1}{4}$  Yard Tailors Sticks, page 122.

## Tailors Curve Sticks



Used in tailoring work. High grade, smooth, hard maple Sticks, well finished in the natural wood. Prominent black markings. Graduated length, 24 inches; thickness  $\frac{1}{8}$  inch. Marked both sides, outer edge, inches to 8ths; opposite sides reading from reverse ends.

No. 8151	Curve Stick.	Plain Ends.....	Per doz.	\$4.80
No. 8152	Curve Stick.	Brass Capped Ends.....	Per doz.	7.20

Above Sticks are of the one curve most commonly used

We also offer No. 8152 Assorted Curve Sticks, i.e.,  
sets of 12 Sticks, each of a different curve

Specify as:

Set No. 8152	Assorted Curve Sticks.....	Per Set of 12	\$9.20
--------------	----------------------------	---------------	--------

Weight per doz.,  $1\frac{1}{4}$  lbs.



## Tailors and Dressmakers Squares

These Squares are of genuine boxwood or of selected hard maple. They are of the light weight preferred by tailors, yet are durable, and are smoothly surfaced and finely finished. All have brass corner plate and corner brace, and have markings and figures stamped and filled in black, most permanent and easy to read. All Squares on this page, except No. **8241**, bear on one side tailors measurements (regular or reverse, as described below); other side inches to 8ths. (The inches are reduced on Nos. **8236** and **8237**.)

### Regular Graduation:

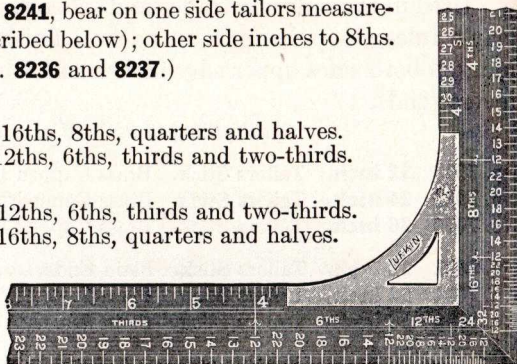
Short arm in 32nds, 16ths, 8ths, quarters and halves.

Long arm in 24ths, 12ths, 6ths, thirds and two-thirds.

### Reverse Graduation:

Short arm in 24ths, 12ths, 6ths, thirds and two-thirds.

Long arm in 32nds, 16ths, 8ths, quarters and halves.



No.	Size	Material	Graduation	Ends	Wt. Doz.	Per Doz.
<b>8130</b>	14x24 inch	Maple	Regular	Plain	2¼ lbs.	\$21.60
<b>8132</b>	14x24 inch	Maple	Regular	Brass Capped	2¼ lbs.	24.00
<b>8134</b>	14x24 inch	Maple	Reverse	Plain	2¼ lbs.	24.00
<b>8135</b>	14x24 inch	Maple	Reverse	Brass Capped	2¼ lbs.	26.40
<b>8231</b>	12x24 inch	Boxwood	Regular	Brass Capped	2½ lbs.	25.20
<b>8232</b>	14x24 inch	Boxwood	Regular	Brass Capped	2½ lbs.	26.40
<b>8233</b>	12x24 inch	Boxwood	Reverse	Brass Capped	2½ lbs.	27.60
<b>8235</b>	14x24 inch	Boxwood	Reverse	Brass Capped	2½ lbs.	28.80
★ <b>8236</b>	6x12 inch	Boxwood	Regular	Brass Capped	1 lb.	26.40
★★ <b>8237</b>	4x 6 inch	Boxwood	Regular	Brass Capped	½ lb.	26.40
★★★ <b>8238</b>	14x24 inch	Boxwood	Regular	Brass Capped	6 lbs.	54.00

★ No. 8236 is a Half Size Square. All graduations reduced to half size, making capacity of this square 12x24 inches.

★★ No. 8237 is a Quarter Size Square. All graduations reduced to quarter size, making capacity of this square 16x24 inches.

★★★ No. 8238 is a Jointed or Take-down Square. It is of extra weight throughout, with corner full brass bound both sides, and with a sturdy and reliable snap joint.

**No. 8241** Shoulder Square. 6x14 inch. Boxwood. Plain Ends. . . . Per doz. \$54.00

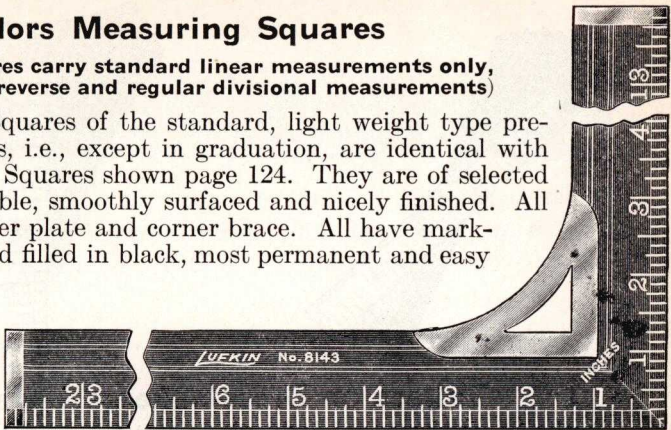
Has stationary and sliding arm, both of boxwood. Has flexible brass strip and tape attachment. All ends are rounded. Sliding arm has tension spring. Blade graduated one side 14 inches to 8ths; brass strip, 14 inches to quarters. Both arms graduated one side 6 inches to 8ths. Stationary arm is "T" shape, extending also 4 inches beyond lower edge of blade. No. **8241** is sometimes known as the "Mitchell" Square. It is regularly made in right shoulder pattern. It can be furnished in left shoulder, i.e., graduated other side, at same price. Weight per dozen, 3¼ lbs.



## Tailors Measuring Squares

These Squares carry standard linear measurements only, (not tailors reverse and regular divisional measurements)

These are Squares of the standard, light weight type preferred by tailors, i.e., except in graduation, are identical with No. 8130 Series Squares shown page 124. They are of selected hardwood, durable, smoothly surfaced and nicely finished. All have brass corner plate and corner brace. All have markings stamped and filled in black, most permanent and easy to read.



### Marked English Linear Measure Only, Both Sides

No.	Size	Material	Graduation	Ends	Wt. Doz.	Per Doz.
8142	14x24 inch	Maple	Inches to 8ths	Plain	2¼ lbs.	\$19.20
8143	14x24 inch	Maple	Inches to 8ths	Brass Capped	2¼ lbs.	21.60
8246	6x10 inch	Boxwood	Inches to 16ths	Plain	¾ lb.	14.40

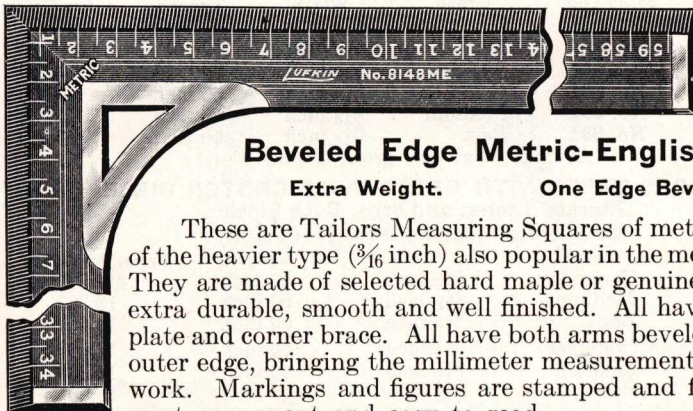
An Arm Square. Has tape attachment.

### Marked English and Metric Linear Measure Only

Brace side, inches to 8ths; opposite side, metric to millimeters

No. 8142EM	14x24 inch.	Maple.	Plain Ends.....	Per doz.	\$21.60
No. 8143EM	14x24 inch.	Maple.	Brass Capped Ends.....	Per doz.	24.00

Weight per doz., 2¼ lbs.



## Beveled Edge Metric-English Squares

Extra Weight.

One Edge Beveled.

These are Tailors Measuring Squares of metric length and of the heavier type ( $\frac{3}{16}$  inch) also popular in the metric countries. They are made of selected hard maple or genuine boxwood, are extra durable, smooth and well finished. All have brass corner plate and corner brace. All have both arms beveled on one side, outer edge, bringing the millimeter measurement closest to the work. Markings and figures are stamped and filled in black, most permanent and easy to read.

### Marked One Edge of Both Sides;

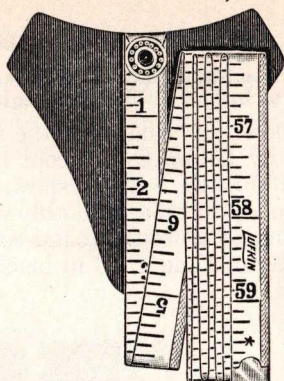
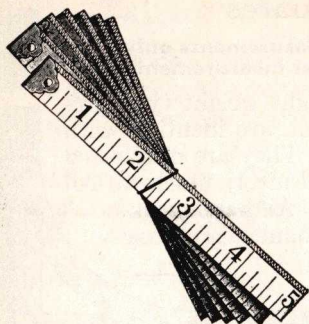
On Bevel to Millimeters, Other Side Inches to 8ths

No.	Size	Material	Ends	Wt. Doz.	Per Doz.
8147ME	35x60 cm.	Maple	Plain	3¼ lbs.	\$25.20
8148ME	35x60 cm.	Maple	Brass Capped	3¼ lbs.	27.60
8248ME	35x60 cm.	Boxwood	Brass Capped	3½ lbs.	34.80

Lighter weight EM Squares, not beveled, see Nos. 8142EM and 8143EM above

NOTE: Tailors Tapes—See page 126.





## Tailors or Dressmakers Tapes

These tapes are all made of double thickness sateen, with lock-stitched edge, and metal-tipped ends. All have clear, black markings on both sides; are carefully folded, stapled and boxed. Numbers are placed vertically on all  $\frac{1}{16}$  inch tapes listed below, horizontally on those  $\frac{1}{8}$  inch wide.

Tapes of Series **671-A** and **691-A** have durable crotch piece or tab, of hard, smooth press board, nicely formed as shown above. By means of glove or snap fastener this piece is quickly and securely attached. It is also readily detached, making the tape line suitable for all other common uses.

### TAILORS TAPES WITHOUT CROTCH PIECE OR ATTACHMENT Marked Inches and 8ths, Both Sides

Opposite Sides Measuring from Reverse Ends	Both Sides Measuring from Same End	Grade	Width	Length	Price, Per Gross
No. 471	No. 671	Common	$\frac{7}{16}$ inch	60 inch	\$ 7.20
No. 472	No. 672	Medium	$\frac{7}{16}$ inch	60 inch	8.70
No. 473	No. 673	Best	$\frac{7}{16}$ inch	60 inch	12.30
No. 491	No. 691	Common	$\frac{9}{16}$ inch	60 inch	8.20
No. 492	No. 692	Medium	$\frac{9}{16}$ inch	60 inch	10.20
No. 493	No. 693	Best	$\frac{9}{16}$ inch	60 inch	14.30

Average weight per gross,  $4\frac{1}{2}$  lbs.

### TAILORS TAPES WITH DETACHABLE CROTCH PIECE Marked Inches and 8ths, Both Sides Both Sides Measure from Same End

Number	Grade	Width	Length	Price, Per Gross
671-A	Common	$\frac{7}{16}$ inch	60 inch	\$11.80
672-A	Medium	$\frac{7}{16}$ inch	60 inch	13.30
673-A	Best	$\frac{7}{16}$ inch	60 inch	16.90
691-A	Common	$\frac{9}{16}$ inch	60 inch	12.80
692-A	Medium	$\frac{9}{16}$ inch	60 inch	14.80
693-A	Best	$\frac{9}{16}$ inch	60 inch	18.90

Average weight per gross, 7 lbs. Packing: 1 dozen in a box, 1 gross in a carton

NOTE: Advertisement printed on crotch piece at small extra charge, lots of 10 gross or more.

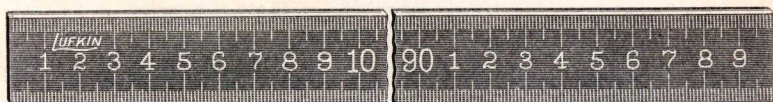
### Metric and English Tailors Tapes

At prices same as above, the tapes on this page can be supplied in 60 inch length marked Metric and English (specify by adding "EM" to stock numbers); also in  $1\frac{1}{2}$  meter length marked metric only both sides (known as "MM"). On all such the first decimeter is subdivided to mm., balance to  $\frac{1}{2}$  cm.; the inches to 8ths. All measure both sides from same end; all numbering is vertical.

NOTE: Woven Pocket Tapes in Cases—See pages 76 and 77.



## Meter Sticks



High grade, hard maple sticks, well finished in the natural wood. Length: 1 meter (39.37 inches). Width: 25 millimeters (1 inch). Thickness: 8 millimeters ( $\frac{5}{16}$  inch). Lines and figures black, easy to read and most permanent.

### Marked Metric and English. (Opposite Sides Reading from Same End.)

One side, both edges, to millimeters; other side, upper edge only, inches to 8ths

No. **7111ME** Meter Stick. Plain Ends.....Per doz. \$8.00

No. **7112ME** Meter Stick. Brass Capped Ends.....Per doz. 9.60

### Marked Metric Only. (Opposite Sides Reading from Reverse Ends.)

Lower edge, both sides, to millimeters

No. **7111MM** Meter Stick. Plain Ends.....Per doz. \$8.00

No. **7112MM** Meter Stick. Brass Capped Ends.....Per doz. 9.60

Weight per doz., 4 lbs.

NOTES: Beveled Edge Sticks Marked Metric and English—See page 122.  
One Meter, One-Piece Steel Rules—See page 232.

## Shoe Size Sticks



Used in shoe stores, etc., for determining shoe sizes. These polished hardwood sticks have one stationary and one sliding jaw. They carry on inside face the standard scale of shoe sizes and half sizes; on back 12 inches to 8ths. Lines and figures are clear-cut and black.

Size Stick No. **8120** is  $\frac{3}{4} \times \frac{5}{16} \times 15\frac{1}{2}$  inches. No. **8221** is  $\frac{15}{16} \times \frac{5}{16} \times 16$  inches. No. **8223** is  $\frac{3}{4} \times \frac{1}{4}$  inch but both beam and jaws fold, and when folded stick is 9 inches long and greatest thickness  $\frac{3}{4}$  inch, handy to carry in shoe salesmans pocket.

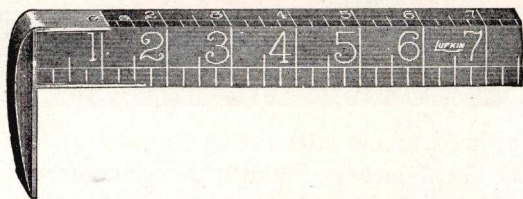
No. **8120** Shoe Size Stick. Maple, with steel mountings.....Per doz. \$8.40

No. **8221** Shoe Size Stick. Boxwood, with brass mountings.....Per doz. 20.40

No. **8223** Shoe Size Stick. Boxwood, folding, brass mountings.....Per doz. 36.00



## Freight Rules



Used for measuring boxes, crates, etc., at warehouses and docks, and for similar work in packing and shipping departments. Rule and hook are both sturdy. Rule is of polished hard maple,  $1 \times \frac{5}{8}$  inch, with clear-cut markings and large figures in black. Hook is of heavy cast brass, extends  $1\frac{7}{8}$  inches from edge of rule and is most securely attached. Rule has handle end rounded and with hole for hanging up.

### Marked Feet, Inches and Quarters, on Two Sides and Top Edge

No. 7154	4 foot.	Freight Rule.	Wt. doz. 12 lbs. ....	Per doz.	\$42.00
No. 7155	5 foot.	Freight Rule.	Wt. doz. 14 lbs. ....	Per doz.	48.00
No. 7156	6 foot.	Freight Rule.	Wt. doz. 16 lbs. ....	Per doz.	60.00

## Barrel Gaging Rod



For determining capacity of standard type barrels (not drums). Rod of polished hard maple,  $\frac{3}{16}$  inch square, with zero end pointed and brass covered. In addition to gallon measurement, rod is marked on two sides in 10ths of inches.

No. 7181 Gaging Rod. Capacity: 120 gallons. Length: 3 ft. .... Per doz. \$20.00

### DIRECTIONS FOR DETERMINING BARREL CAPACITY

Insert Gaging Rod through bung hole in side of barrel diagonally over to the head or end. Do this in both directions, right and left. Read the Rod at the center of bung for both insertions, and take the average of the two readings.

Example: If one reading is 40, and the other 44, 42 gallons is the capacity, i.e., contents when full.

## Barrel Wantage Rod



For determining wantage or outage of standard type barrels. Rod of polished hard maple,  $\frac{5}{8}$  inch square, 18 inches long. This 12-line rod is suitable for barrels of twelve standard sizes.

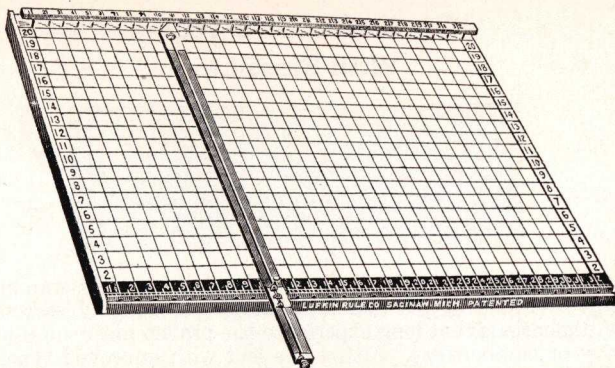
No. 7188 Wantage Rod. .... Per doz. \$42.00

### DIRECTIONS FOR DETERMINING WANTAGE

Barrel should lie level on its side. Insert Wantage Rod slowly and straight into the barrel through the bung hole at its side until brass angle of Rod rests under and against the staves. Using the column of figures that represents the capacity and bung diameter of the barrel, read the line of the liquid.

Example: If Rod is wet as far as 10, shortage is 10 gallons.

NOTE: Rods on this page can be furnished in Imperial gallon measure.



(Upper side of straight edge)



(Lower side of straight edge)

## "Perfection" Glass Boards

**A Device Indispensable to All Dealers in Glass  
Saves Its Cost in a Short Time**

The "Perfection" Glass Board is the modern device for cutting window glass accurately and uniformly to size.

This Board is of narrow strips of well seasoned lumber, glued and dove-tail cleated. It is ruled in inches both ways and well finished. By means of guides at left and upper edges, glass is quickly brought into position. Embedded steel rule at front edge, graduated inches and 8ths, is used in setting straight edge. Top and left edges of board are numbered in inches.

The Straight Edge is unique, simple and positive in operation. Turning knob at front end moves it straight forward or backward to any inch or fraction inch, indicated on the steel rule. Turning set screw locks it firmly at any location. This insures accurate, straight cuts, as well as uniformity when more than one light of a size is to be cut.

## "Perfection" Glass Boards

**Complete with Straight Edge**

Size in Inches		Wt. Each, Packed	Price, Each
24 x 36	Glass Board.....	36 lbs.	\$30.00
30 x 48	Glass Board.....	58 lbs.	38.00
36 x 54	Glass Board.....	72 lbs.	44.00
42 x 60	Glass Board.....	100 lbs.	50.00
48 x 72	Glass Board.....	136 lbs.	64.00

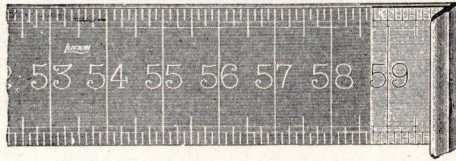
### Straight Edges Only for "Perfection" Glass Boards

Below we list Straight Edges only, that being the part of a Glass Board receiving most wear. These are Straight Edges complete with fittings.

Straight Edge for Board size 24 x 36.....	Price, each	\$7.20
Straight Edge for Board size 30 x 48.....	Price, each	7.40
Straight Edge for Board size 36 x 54.....	Price, each	7.60
Straight Edge for Board size 42 x 60.....	Price, each	7.80
Straight Edge for Board size 48 x 72.....	Price, each	8.00



## Glass Cutters Rules With Brass Lip

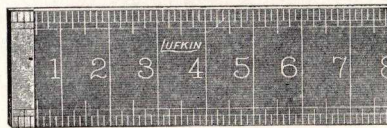


These are the rules most extensively used in glass factories, warehouses, and by the glass trade. Made of selected hard maple, thoroughly seasoned and well finished. Of dimensions that long experience has proven most suitable, sturdy, yet not too heavy or cumbersome. Fitted one end with improved type, substantial, extruded brass lip or flange extending  $\frac{3}{8}$  inch from flat face of rule. Lip is securely attached by rivets through both side plates. Other end of rule is brass capped. All markings and figures are deeply cut, extra heavy and black, most permanent and easy to read. On upper face the zero point falls at inside of lip; on lower face, at opposite end of rule.

### Marked Both Sides, Both Edges, Consecutive Inches to 8ths

No.	Length	Dimensions	Wt. Each	Price, Each
7141	36 inch	2 x $\frac{5}{16}$ inch	$\frac{3}{4}$ lb.	\$ 3.70
7142	48 inch	2 x $\frac{5}{16}$ inch	1 lb.	4.30
7143	60 inch	$2\frac{1}{2}$ x $\frac{3}{8}$ inch	$1\frac{1}{4}$ lbs.	5.20
7144	72 inch	$2\frac{1}{2}$ x $\frac{3}{8}$ inch	$1\frac{3}{4}$ lbs.	6.20
7145	84 inch	3 x $\frac{3}{8}$ inch	2 lbs.	7.50
7146	96 inch	3 x $\frac{3}{8}$ inch	$2\frac{1}{4}$ lbs.	9.10
7147	108 inch	3 x $\frac{3}{8}$ inch	$2\frac{1}{2}$ lbs.	11.00
7148	120 inch	3 x $\frac{3}{8}$ inch	$2\frac{3}{4}$ lbs.	13.30
7149	144 inch	3 x $\frac{3}{8}$ inch	$3\frac{1}{4}$ lbs.	18.20

## Glaziers Rules Without Lip



Glaziers Flat Rules of selected hard maple, with both ends brass capped. Markings and figures in black, extra heavy and deeply cut, most permanent and easy to read. Opposite sides measure from reverse ends.

### Marked Both Sides

One Side, Both Edges, Consecutive Inches to 8ths;

One Side, Lower Edge Consecutive Inches to 8ths, Upper Edge Feet and Quarter Feet

No.	Length	Dimensions	Wt. Each	Price, Each
7136	36 inch	2 x $\frac{1}{4}$ inch	$\frac{1}{2}$ lb.	\$1.10
7137	48 inch	2 x $\frac{1}{4}$ inch	$\frac{3}{4}$ lb.	1.50
7138	60 inch	$2\frac{1}{2}$ x $\frac{1}{4}$ inch	$\frac{3}{4}$ lb.	2.20
7139	72 inch	$2\frac{1}{2}$ x $\frac{1}{4}$ inch	1 lb.	3.00
7140	84 inch	3 x $\frac{1}{4}$ inch	1 lb.	4.30

NOTES: Folding Extension Rules for Measuring Openings—See page 93.  
Steel Tape-Rule for Measuring Openings—See page 84.



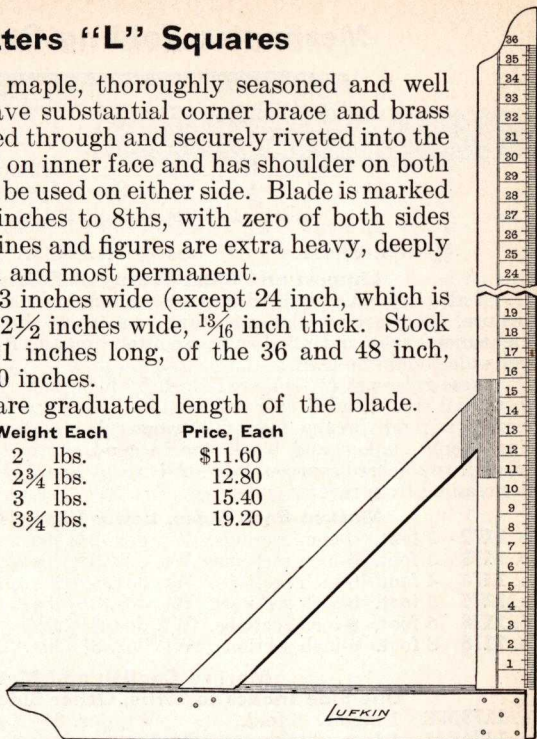
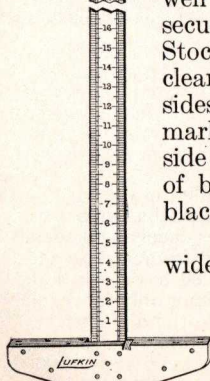
## Glass Cutters "L" Squares

Made of selected hard maple, thoroughly seasoned and well finished. These Squares have substantial corner brace and brass side plates. Blade is mortised through and securely riveted into the stock. Stock is brass bound on inner face and has shoulder on both sides of blade, so square can be used on either side. Blade is marked both sides, on outer edge, inches to 8ths, with zero of both sides falling at inside of stock. Lines and figures are extra heavy, deeply cut and black, easy to read and most permanent.

Blade is  $\frac{1}{4}$  inch thick, 3 inches wide (except 24 inch, which is  $2\frac{1}{2}$  inches wide). Stock is  $2\frac{1}{2}$  inches wide,  $\frac{13}{16}$  inch thick. Stock of the 24 inch Square is 21 inches long, of the 36 and 48 inch, 27 inches, of the 60 inch, 30 inches.

Lengths given below are graduated length of the blade.

Length		Weight Each	Price, Each
24 inch.	"L" Square	2 lbs.	\$11.60
36 inch.	"L" Square	$2\frac{3}{4}$ lbs.	12.80
48 inch.	"L" Square	3 lbs.	15.40
60 inch.	"L" Square	$3\frac{3}{4}$ lbs.	19.20



## Glass Cutters "T" Squares

Made of selected hard maple, thoroughly seasoned and well finished. One end of blade is mortised through and securely riveted into the stock; other end brass capped. Stock is brass bound on inner face, and notched, giving clearance for glass cutting wheel. It has shoulder on both sides of blade so square can be used on either side. Blade is marked both edges of both sides, inches to 8ths, zero of one side falling at inside of stock, zero of other side at other end of blade. Lines and figures are deeply cut, extra heavy and black, most permanent and easy to read.

Blade is 2 inches wide,  $\frac{5}{16}$  inch thick. Stock is 2 inches wide,  $\frac{15}{16}$  inch thick, and 14 inches long on both sizes.

Lengths given below are length of blade under the stock.

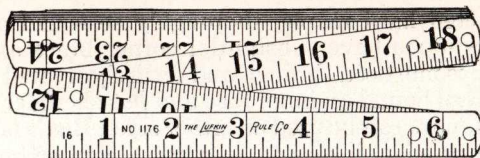
Length	Weight Each	Price, Each
36 inch. "T" Square	$1\frac{1}{2}$ lbs.	\$ 7.20
48 inch. "T" Square	$1\frac{3}{4}$ lbs.	10.60

Listed above are the popular lengths of "L" and "T" Squares, and the only ones we regularly stock. The demand for other lengths is very limited, and as they are made to order, their cost is considerably higher.

NOTE: Glass Cutting Boards—See page 129.



## Mechanics Folding Steel Rules



**3/4 Inch Wide.**

**Six-inch Folds.**

**Lock Joints.**

### Longest and Most Sturdy of Folding Steel Rules

Of all Long Folding Steel Rules these best maintain their accuracy and withstand hard use. They are popular in steel mills, machine shops and other places where lighter weight metal rules and wood rules are often broken. (On very precise work a one-piece steel scale should be used.)

These rules are of tempered steel, 3/4 inch wide, 1/2 inch thick. Each joint has a substantial rivet headed over washers and two durable stops or snap sockets, holding the sections rigidly in alignment both when rule is open and closed. The lines and figures, being deeply sunken and black, are in good contrast, easy to read and permanent. Inches are numbered consecutively. All except Nos. **1174EM** and **1173ME** have opposite sides reading from reverse ends.

### Marked Both Sides, Lower Edge, Inches to 16ths

No. <b>1172</b>	2 foot.	6-inch sections.	Wt. doz. 2 1/4 lbs.	Price, each	\$1.30
No. <b>1173</b>	3 foot.	6-inch sections.	Wt. doz. 3 1/4 lbs.	Price, each	2.00
No. <b>1174</b>	4 foot.	6-inch sections.	Wt. doz. 4 1/2 lbs.	Price, each	2.60
No. <b>1175</b>	5 foot.	6-inch sections.	Wt. doz. 5 1/2 lbs.	Price, each	3.30
No. <b>1176</b>	6 foot.	6-inch sections.	Wt. doz. 6 1/2 lbs.	Price, each	3.90
No. <b>1178</b>	8 foot.	6-inch sections.	Wt. doz. 8 1/2 lbs.	Price, each	5.40

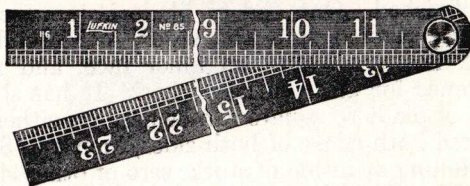
### Marked English and Metric:

#### One Side Inches to 16ths, Other Side to Millimeters

No. <b>1173ME</b>	1 meter.	6 fold.	Wt. doz. 3 1/2 lbs.	Price, each	\$2.30
No. <b>1174EM</b>	4 foot.	6-inch sections.	Wt. doz. 4 1/2 lbs.	Price, each	2.70

Packing: 2 ft., 3 ft. and 1 meter rules, twelve in a box; all others, six in a box

## Folding Steel Two-Foot Rules



**3/4 Inch Wide.**

**12-inch Sections.**

Sturdy, two-foot, two-section, tempered steel rules for blacksmiths, shop work, etc. Three-quarter inch wide, about 1/2 inch thick. Lines and figures deeply sunken and black, easy to read, permanent and prominent. Opposite sides read from reverse ends. Staunchly riveted joints with large side washers. All except No. **80** have stop joint, bringing the rule to a stop when opened straight. No. **86** is suitable not only for regular measuring, but gives at a direct reading the circumference opposite the diameter.

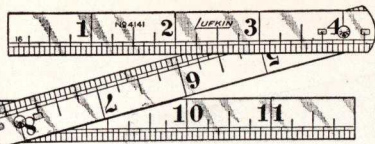
No.	Length	Markings	Price, Each
<b>80</b>	2 foot	One side 8ths, other 16ths inch. Plain Joint.	\$1.00
<b>85</b>	2 foot	One side 8ths, other 16ths inch. Stop Joint.	1.30
<b>86</b>	2 foot	One side inches to 16ths; other side, upper edge, inches to 8ths, lower edge 75 circumference inches to 8ths. Stop Joint.	1.50

Weight per doz.: 2 lbs. Packing: Twelve in a box

NOTES: Aluminum Rules—See pages 98 and 99. Blacksmiths Brass Rules—See page 134.



## Folding Steel Pocket Rules



**1/2 Inch Wide.**

**4 and 6-inch Folds.**

**Lock Joints.**

**Semi-flexible, Medium Weight Rules, Machine Divided**

Rules fine enough for anyone to carry. Furnished with or without metal-bound leather case. These rules are of tempered steel, 1/2 inch wide, and being approximately .020 inch thick, will form to a circle. Machine divided, sunken graduation lines and figures in black, easy to read. For a folding rule these afford a close degree of accuracy. They have stop or snap joints, holding sections properly in alignment either open or closed. Inches are numbered consecutively. All except No. **4141EM** have opposite sides reading from reverse ends.

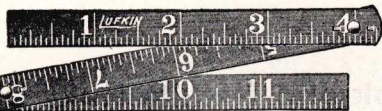
**Marked Lower Edge of Both Sides: One Side 8ths, Other Side 16ths Inch**

Number	Length		Wt. Doz.	Without Case Price, Each	With Case Price, Each
<b>4141</b>	1 foot	4-inch sections	1/2 lb.	\$0.90	\$1.00
<b>4142</b>	2 foot	4-inch sections	1 lb.	1.50	1.60
<b>4143</b>	3 foot	4-inch sections	1 1/2 lbs.	2.30	2.40
<b>4144</b>	4 foot	4-inch sections	2 1/4 lbs.	3.00	3.10
<b>4642</b>	2 foot	6-inch sections	1 lb.	1.40	1.55
<b>4643</b>	3 foot	6-inch sections	1 1/2 lbs.	2.20	2.35
<b>4644</b>	4 foot	6-inch sections	2 1/4 lbs.	3.00	3.15
<b>* 4141EM</b>	1 foot	4-inch sections	1/2 lb.	1.00	1.10

\*Marked one side inches to 16ths, other side millimeters.

Packing: Nos. **4141** and **4642**, twelve in a box; all others, six in a box

## Folding Steel Pocket Rules



**3/8 Inch Wide, Flexible.**

**"Nubian" Finish.**

**Lock Joints.**

While of medium price, these rules are not flimsy. They are of tempered steel, 3/8 inch wide, approximately .020 inch thick, and will form to a circle. Against the "Nubian" (black) background, the raised lines and figures, in the natural steel, are easy to read. Stop or snap joints hold the sections in alignment either open or closed. Rules furnished with or without metal-bound leather case. Nos. **1141**, **1142** and **1143** have opposite sides reading from reverse ends. All have 4-inch sections except No. **1163ME** which has 20-centimeter sections.

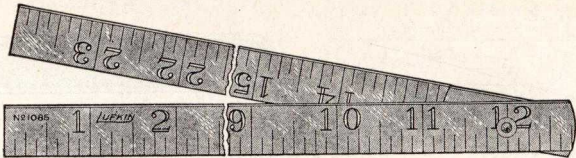
Number	Length	Markings	Weight Doz.	Without Case Price, Each	With Case Price, Each
<b>1141</b>	1 foot	Inches to 16ths, both sides...	1/2 lb.	\$0.60	\$0.70
<b>1142</b>	2 foot	Inches to 16ths, both sides...	3/4 lb.	1.10	1.20
<b>1143</b>	3 foot	Inches to 16ths, both sides...	1 lb.	1.70	1.80
<b>1141D</b>	1 foot	Inches to 16ths, one side; 10ths and 100ths foot, other side.	1/2 lb.	.60	.70
<b>1143ME</b>	1 meter	Millimeters one side; inches to 16ths, other side.	1 1/4 lbs.	1.70	1.80
<b>1163ME</b>	1 meter	Millimeters one side; inches to 16ths, other side.	1 1/4 lbs.	1.70	1.80

Packing: Twelve in a box

NOTE: Unless cases are specified, we ship rules without cases.



Folding Brass Two-Foot Rules



Rust Proof.                      12-inch Sections.                      Stop Joints.

These rust-proof rules of hard brass are popular with blacksmiths and other metal workers. No. 1085 is  $\frac{1}{16} \times \frac{9}{16}$  inch. No. 1086 is slightly thinner and  $\frac{3}{4}$  inch wide. No. 1086 is suitable not only for regular measuring, but gives at a direct reading the circumference opposite the diameter.

Both have stop joint, and sunken, black lines and figures, permanent and in good contrast to the natural brass rule surface. Opposite sides measure from reverse ends.

No.	Length	Sections	Markings	Price Each
1085	2 ft.	12 inch	Both sides, lower edge; one side 8ths, other 16ths inch.....	\$1.00
1086	2 ft.	12 inch	One side, lower edge 16ths inch; other side upper edge inches to 8ths, lower edge 75 circumference inches to 8ths.....	2.00

Weight per doz., 2 $\frac{3}{4}$  lbs. Packing: Twelve in a box

NOTE: Blacksmiths Steel Rules—See page 132.

Blacksmiths Brass Hook and Handle Rule



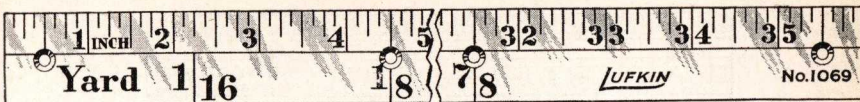
A sturdy, 12 inch, one-piece rule and hook of hard brass,  $1\frac{1}{16} \times \frac{1}{10}$  inch, for blacksmiths and others working on hot metals. Often used for measuring through wheel hubs, etc. Solid hook projects  $\frac{1}{2}$  inch from lower edge; other end of rule has formed handle and hole for hanging up. Overall length  $16\frac{3}{4}$  inches. Marked both sides 12 inches to 16ths. One side measures from inside of hook, other side from end of rule. Sunken black lines and figures, permanent and prominent.

No. 1063    12 inch.    Blacksmiths Brass Hook Rule .....Price, each    \$3.00

Weight each,  $\frac{1}{2}$  lb.



## Brass Counter Rules



Handy wherever goods are sold over the counter by the yard. Extensively used in dry goods and department stores. An accurate measure, easy to read from either side of the counter, most satisfactory to buyer and seller. Of hard brass,  $\frac{3}{4}$  inch x 18 gage (.040 inch). All drilled and countersunk for attaching to counter. Marked one side only with permanent, sunken, black lines and figures.

**No. 1068 3 foot. Brass Counter Rule.** Marked fractions of yards only as follows:  $\frac{1}{16}$ ,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{5}{8}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$  and  $\frac{7}{8}$ . Each \$1.50

**No. 1069 3 foot. Brass Counter Rule.** Marked upper edge inches to 8ths; lower edge fractions of yards as follows:  $\frac{1}{16}$ ,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{5}{8}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$  and  $\frac{7}{8}$ . Each \$2.00  
Weight each, 5 ozs.

## Manual Training Steel Rules



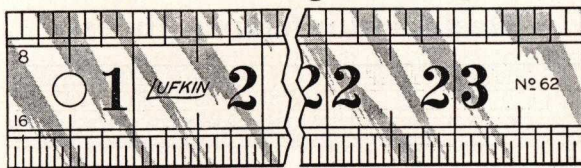
A tempered steel rule graduated to 16ths, popular for school shop and other uses.  $\frac{3}{4}$  inch wide,  $\frac{1}{32}$  inch thick. Has machine divided, sunken lines and figures in black, contrasting with the steel rule surface. Opposite sides read from reverse ends. Hole in one end for hanging up.

*Always Specify Stock Number and Length*

**Marked Upper Edge of Both Sides; One Side 8ths, Other Side 16ths Inch**

**No. 60 1-ft. Steel Rule.** Weight, each  $1\frac{1}{2}$  ozs. Price, each \$0.50  
**No. 60 2-ft. Steel Rule.** Weight, each 3 ozs. Price, each 1.00

## One-Piece Long Steel Rules



Tempered steel rules of medium weight. Well suited to such school and shop bench work and other work as requires a long, one-piece metal rule to 16ths. Markings are heavier than on machine divided scales.  $1\frac{1}{4}$  inch wide,  $\frac{1}{16}$  inch thick,  $\frac{1}{4}$  inch hole in one end. Prominent graduation lines and figures, sunken and black, easy to read. Opposite sides measure from reverse ends.

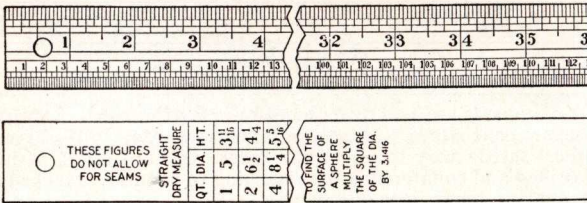
*Always Specify Stock Number and Length*

**Marked Both Sides, Both Edges; Upper Edge 8ths, Lower Edge 16ths Inch**

**No. 62 1-ft. Steel Rule.** Weight, each 5 ozs. Price, each \$ 1.50  
**No. 62 2-ft. Steel Rule.** Weight, each 9 ozs. Price, each 2.50  
**No. 62 3-ft. Steel Rule.** Weight, each 13 ozs. Price, each 3.60  
**No. 62 4-ft. Steel Rule.** Weight, each 18 ozs. Price, each 5.50  
**No. 62 5-ft. Steel Rule.** Weight, each 22 ozs. Price, each 7.50  
**No. 62 6-ft. Steel Rule.** Weight, each 26 ozs. Price, each 9.60  
**No. 62 8-ft. Steel Rule.** Weight, each 35 ozs. Price, each 14.00



# Tinners Steel Circumference Rules



## A Standard Tool with Tinners and Other Sheet Metal Workers

Tempered steel rules of medium weight. 1 1/4 inch wide, 1/16 inch thick. Quarter inch hole at first end for hanging up. Sunken, black graduation lines and figures, easy to read and permanent. Rules furnished either not plated or nickel plated.

Marked one side, upper edge standard inches to 16ths, lower edge circumference inches to 8ths. Applied to diameter this rule gives at a direct reading both the diameter and the corresponding circumference. The three foot rule carries 113 circumference inches, the four foot, 150. Other side carries formulas for calculating circumference, diameter, area, etc., and size tables for laying out measures and cans as follows:

Flaring Liquid Measure.....	1/4 pint to 5 gallons.
Flaring Dry Measure.....	1/4 bushel to 2 bushels.
Straight Dry Measure.....	1 quart to 3 bushels.
Pitched Top Cans.....	1 to 10 gallons.
Flat Top Cans.....	1 to 100 gallons.

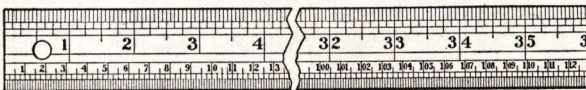
*Always Specify Stock Number, Length and Whether Plain or Nickel Plated*

No. 95	3-ft. Plain.	Tinners Rule.....	Price, each	\$4.50
No. 95	4-ft. Plain.	Tinners Rule.....	Price, each	5.50
No. 95	3-ft. Nickel Plated.	Tinners Rule.....	Price, each	5.50
No. 95	4-ft. Nickel Plated.	Tinners Rule.....	Price, each	6.50

Weight each: 3 ft., 13 ozs. 4 ft., 18 ozs.

NOTE: These rules can be supplied with the tables on the basis of Imperial. rather than U. S. Wine Gallons. Regularly so furnished to the Canadian trade.

## Steel Circumference Rules



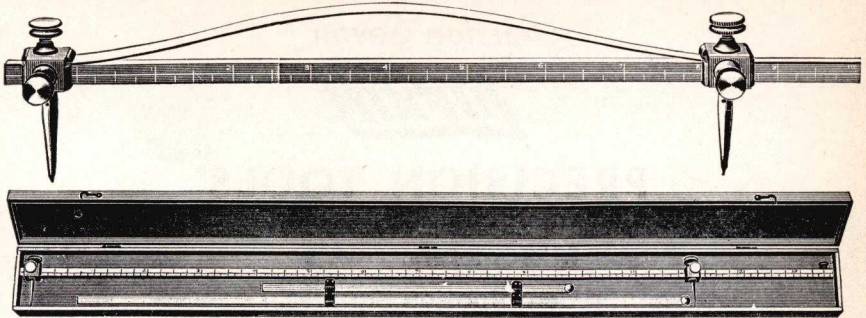
Medium weight tempered steel rules, 1 1/4 x 1/16 inch. Sunken, black markings, permanent and prominent. Quarter inch hole at first end for hanging up. Rules supplied either not plated or nickel plated.

These rules are exactly same as No. 95, above, except tables and formulas eliminated and that side carrying instead standard measure, 8ths and 16ths inch, i.e., they are marked as follows: One side, upper edge standard inches to 8ths, lower edge to 16ths; other side, upper edge standard inches to 16ths, lower edge circumference inches to 8ths. Applied to diameter this rule also gives at a direct reading both the diameter and the corresponding circumference. Opposite sides read from same end.

*Always Specify Stock Number, Length and Whether Plain or Nickel Plated*

No. 96	3-ft. Plain.	Circumference Rule.....	Price, each	\$4.50
No. 96	4-ft. Plain.	Circumference Rule.....	Price, each	5.50
No. 96	3-ft. Nickel Plated.	Circumference Rule.....	Price, each	5.50
No. 96	4-ft. Nickel Plated.	Circumference Rule.....	Price, each	6.50





## “Magic” Pattern Rule

### A Great Labor Saving Device for Every Tin Shop

The popular device for quickly and accurately laying out sheet metal elbow patterns of any angle and up to 15 inches in diameter. The “Magic” Pattern Rule can be used also as a common rule, a circumference rule, a trammel, and a straight edge for ordinary work.

Consists of a graduated, 49-inch steel bar  $\frac{7}{16}$  inch square, fitted with two, brass, sliding trammel heads, each head having two set screws, two gibs and one removable steel point. Furnished with each rule there is also a set of three flexible steel ribbons of different gages, one each 24, 36 and 48 inches long, and an instruction chart. The whole outfit is put up in a good, hinged, wooden box.

The bar has permanent, sunken markings; 47 standard inches to 8ths one side, 15 diameter inches to 8ths other side. Bar and all its parts are nicely nickel plated. The chart is 18 x 23 inches in size, clearly printed, and mounted on linen. It is very durable and is equipped for hanging up. In addition to the elbow diagram and instructions, it carries rules for cutting many kinds of flaring, oval, cylindrical and cone shaped vessels, with the aid of the “Magic” Pattern Rule.

When laying out an elbow pattern, select from among the three steel ribbons, the proper one for use with the bar. Fasten left hand trammel at zero point on the bar. Set right hand trammel according to diameter elbow wanted. Raise the steel ribbon to the required height according to the angle elbow wanted. A glance at the chart gives this height.

Example: Wanted, an elbow 6 inches in diameter and of an angle corresponding with long line “C” on the chart. Set right hand trammel at Figure 6 on front side of bar, i.e., diameter measure side. On the chart, measure with an ordinary rule the length of the perpendicular line 6 from bottom of diagram to where it meets angle line “C.” Raise steel ribbon to this height, fasten it with set screw, and it is set ready for a pattern. (For extra large elbows take twice the height indicated on chart for one-half the size.)

“Magic” Pattern Rule, Complete with Chart and Box . . . . . Price, each \$18.00

Chart Only for “Magic” Rule . . . . . Price, each \$1.30

Weight of Rule complete with box, each 6½ lbs.



## Section Seven



# PRECISION TOOLS

**Micrometers.**

**Combination Squares.**

**Calipers and Dividers.**

**Steel Scales.**

**Gages.**

**Etc.**

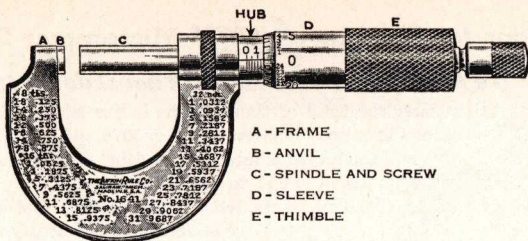
**P**RECISION Tools are the product of a separate division of our plant, in which we bring to the choice of materials and to the designing, manufacturing and inspecting of each tool that specialized knowledge and care which insures its superior quality.

Our Precision Tool Division is, however, a unit under the same general management as the manufacture of our Measuring Tapes, etc. In building and marketing these Tools we are not only maintaining but extending the high reputation which our Measuring Tapes and Rules have borne for many years.

**LUFKIN** Tools are well designed and finished, but, more important, they have a number of improved and exclusive features that are a really great aid to mechanics.

Thus this Line, in what comparatively is a short time, has won the favor of fine mechanics and established itself high among the leaders of its kind.

*While this Section of this General Catalog covers our Precision Tools, we issue a separate Catalog confined to such Tools, exclusively. That Precision Tool Catalog we gladly send on request to Mechanics and the Trade.*



## General Description of Micrometer Calipers

(Pages 142 to 166)



Micrometers are made in various patterns and have valuable improved and patented features. Among these are:

**SIMPLICITY OF CONSTRUCTION.**  
**EASE OF ADJUSTMENTS.**  
**"RAPID READING."**

All are of special analysis steel, making them rigid, reliable and durable. The anvil and the spindle and screw are of finest quality tool steel, properly hardened. The anvil is forced into the frame, making it a permanent, fixed part of the tool. Our Micrometers have the standard features of Lock Nut and Ratchet Stop. Lock Nut, given slight turn, firmly locks the spindle; Ratchet Stop assures the same degree of pressure always being used.

**AS TO PATTERN, WE OFFER THREE TYPES OF MICROMETERS:**

- (1) Full Finished Frame.
- (2) Enameled, Medium Weight, Ribbed Frame.
- (3) Enameled, Heavy, Ribbed Frame.

**AS TO GRADUATION OR MEASUREMENT, WE OFFER THREE KINDS ALSO:**

- (1) Reading to Thousandths of an Inch.
- (2) Reading to Ten-thousandths of an Inch.
- (3) Reading to Hundredths of a Millimeter.

Most important features in any Micrometer are the provisions made for adjustments for wear on the face of anvil and spindle, and for tension, also the ease and accuracy with which the user can make such adjustments. Our method and the tool for the work (a combined frictional and spanner wrench, furnished with each Micrometer) are ideal for these purposes. Sleeve "D" is threadedly engaged into thimble "E," with the same pitch as thread of spindle and screw "C." This keeps the zero reading line on sleeve always in correct reading position regardless of how much is lapped off of spindle or anvil. Thimble "E" is a permanent part of spindle and screw "C." Our distinctive method of adjustment (detailed page 140) prolongs the life and prevents the mutilation of the Micrometer. Furthermore, it is the quickest and simplest adjustment embodied in any Micrometer.

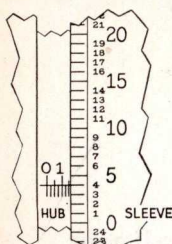
"Rapid Reading" is regular on all our Micrometers marked in inches. It consists of numbering graduations on the sleeve at each thousandth instead of at every five thousandths only. This makes reading more rapid, also more positive, for by merely adding the thousandths, as shown by the figures on the sleeve, to the last twenty-five thousand line on the hub, the total is obtained. This eliminates many chances of error.

"Direct Indicating" Micrometers (eliminating many calculations) appear page 145.

NOTE: Large Skeleton View of Our Micrometer, Showing Its Construction—See page 141.



## Directions for Reading **LUFKIN** Micrometer Calipers



READING TO .154

Per Cut to the right, the hub bears ten of these division lines occupying the same space as nine divisions on the sleeve, and numbered 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

To the reading on the hub add the reading on the sleeve, as detailed top of this page, this giving the total of full thousandths. To that add the reading of that line on the vernier which coincides with a line on the sleeve. If that be the line numbered 4, it means .0004 i.e., 4/10,000ths inch.

Example: Cut to the right shows total measurement .1546 inch. This is the grand total of 150 thousandths indicated on hub, plus 4 thousandths indicated on sleeve, plus 6 ten-thousandths indicated on vernier.

### To Read a Measurement to Thousandths Inch:

Read first the total of thousandths indicated by the lines on the hub (each of those lines represents 25) as .025, .050, .075, .100, .125, etc.

To this add the intermediate thousandths, reading these directly off the sleeve, where each one, 1 to 24, is numbered.

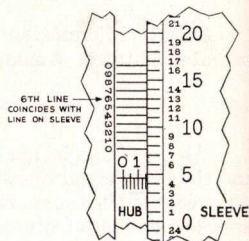
Example, (per Cut to the left): Hub reading total is 150

Sleeve reading is 4

Total Measurement is .154 inch.

### To Read a Measurement to Ten-Thousandths of an Inch:

Measurements to ten-thousandths inch are obtained by using vernier graduations, (a series of divisions on the hub of our Micrometer).



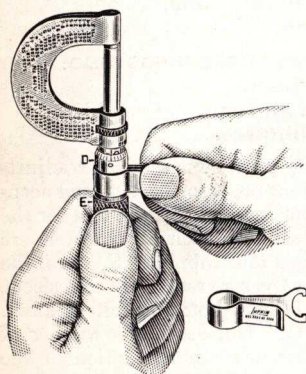
READING TO .1546

## Directions for Adjusting **LUFKIN** Micrometer Calipers

(This Instruction and Adjustment Wrench Are Packed with Each Micrometer)

### To Adjust for Wear on the Faces of Anvil and Spindle:

Clean the faces of anvil and spindle and bring them together. Slip the frictional wrench over sleeve "D," then hold the Micrometer and wrench in the position here illustrated. (This brings the reading lines directly in view, so adjusting can be done in either direction without removing the wrench.) Then grip the wrench firmly and rotate graduated sleeve "D" until zero line of this sleeve coincides with reading line on the hub. (Sleeve "D" is threadedly engaged in thimble "E.")



### To Adjust Tension and Take Up Wear on Screw of Spindle:

For this purpose the spanner end of wrench fits the nut on end of hub of frame.

### To Adjust Tension Between Sleeve "D" and Thimble "E":

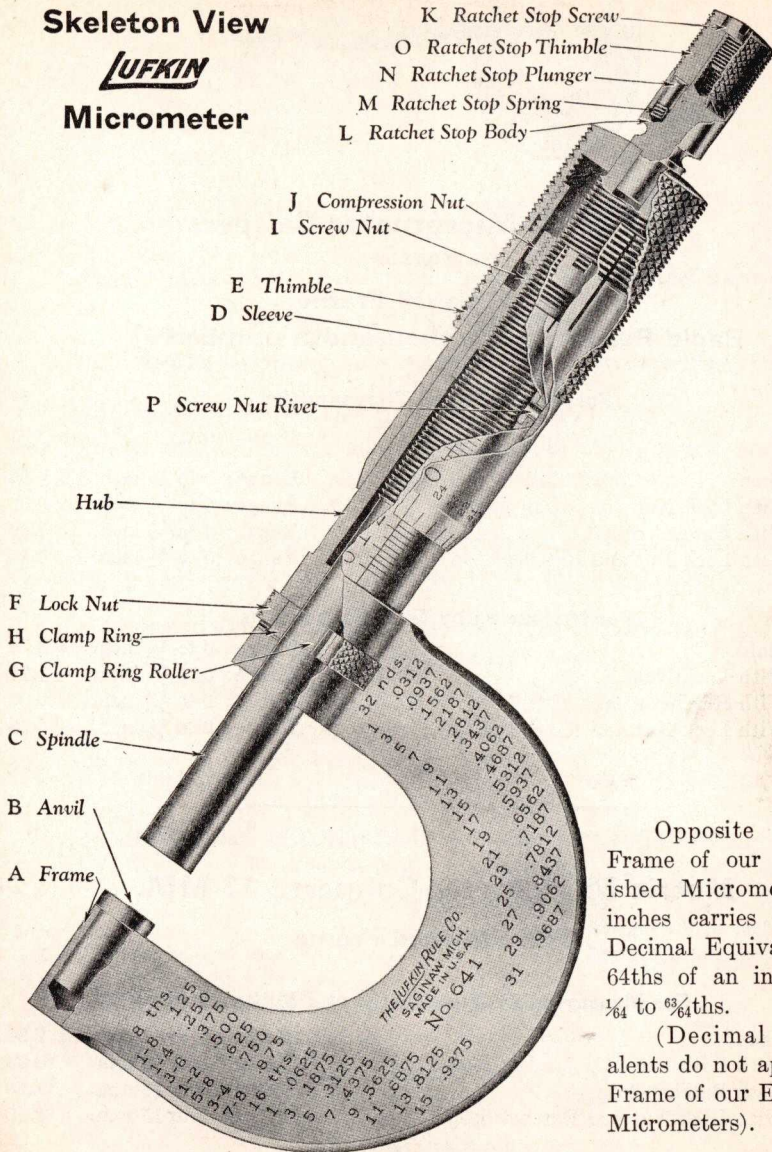
Screw sleeve "D" out of thimble "E." It will then be noted that sleeve "D" is slotted at three points. By spreading these slots slightly, any tension desired between the two parts can be obtained.

These simple methods of adjustment prevent the mutilation and prolong the life of the Micrometer.

# Skeleton View

**LUFKIN**

## Micrometer

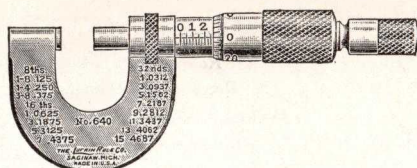


Opposite side of Frame of our full finished Micrometers in inches carries table of Decimal Equivalents of 64ths of an inch from  $\frac{1}{64}$  to  $\frac{63}{64}$ ths.

(Decimal Equivalents do not appear on Frame of our Enamelled Micrometers).

NOTE: A card, carrying this skeleton view enlarged, together with directions for adjusting our Micrometers, and bearing on reverse side a Table of Decimal Equivalents, we gladly send on request. Card is size  $8\frac{1}{2} \times 11$  inches and equipped for hanging up. It is very handy in the tool crib, also for purposes of instruction at schools, etc.





## Half-Inch Micrometer Calipers

(PATENTED)

### Full Finished Frame

### Rapid Reading (each thousandth numbered)

#### For Measuring by Thousandths

Number			Price Each
610	Plain.....	Range: 0 to $\frac{1}{2}$ inch.	\$ 7.00
620	With Lock Nut.....	Range: 0 to $\frac{1}{2}$ inch.	8.00
630	With Ratchet Stop.....	Range: 0 to $\frac{1}{2}$ inch.	7.50
640	With Lock Nut and Ratchet Stop.....	Range: 0 to $\frac{1}{2}$ inch.	8.50

#### For Measuring by Ten-thousandths

610V	Plain.....	Range: 0 to $\frac{1}{2}$ inch.	\$ 8.75
620V	With Lock Nut.....	Range: 0 to $\frac{1}{2}$ inch.	9.75
630V	With Ratchet Stop.....	Range: 0 to $\frac{1}{2}$ inch.	9.25
640V	With Lock Nut and Ratchet Stop.....	Range: 0 to $\frac{1}{2}$ inch.	10.25

## Metric Micrometer Calipers. 13 MM.

### Full Finished Frame

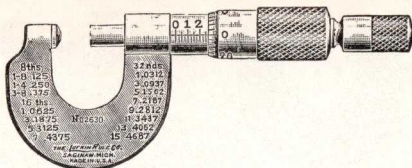
#### For Measuring by Hundredths of a Millimeter

610M	Plain.....	Range: 0 to 13 mm.	\$ 7.00
620M	With Lock Nut.....	Range: 0 to 13 mm.	8.00
630M	With Ratchet Stop.....	Range: 0 to 13 mm.	7.50
640M	With Lock Nut and Ratchet Stop.....	Range: 0 to 13 mm.	8.50

Packing: One in a box. Weight each: 3 ounces

NOTES: Cut Away Frame—Any of above Micrometers so furnished when specified.  
No extra charge.

General Description of Micrometer Calipers—See Pages 139 to 141.



## Tubing Micrometer Calipers

(PATENTED)

**Two Types: Full Finished Frame. Enameled Frame.**

**All Frames Cut Away**

**Rapid Reading (each thousandth numbered)**

Micrometers listed on this page will accurately measure thickness of tubing walls, etc. The half-inch size is suitable for tubing as small as  $\frac{5}{16}$  inch (8 mm.); the one-inch size down to  $\frac{3}{8}$  inch ( $9\frac{1}{2}$  mm.).

The end of anvil is rounded so it touches at only one point on the inside of tube; the end of spindle is flat so it touches at only one point on outside; thus giving exact thickness. Cut away frame gives clearance.

### HALF-INCH MICROMETER CALIPERS FOR TUBING

Full Finished, Cut Away Frame

For Measuring by Thousandths

Number			Price Each
2610	Plain.....	Range: 0 to $\frac{1}{2}$ inch.	\$8.00
2630	With Ratchet Stop.....	Range: 0 to $\frac{1}{2}$ inch.	8.50

### ONE-INCH MICROMETER CALIPERS FOR TUBING

Full Finished, Cut Away Frame

For Measuring by Thousandths

2611	Plain.....	Range: 0 to 1 inch.	\$ 9.50
2631	With Ratchet Stop.....	Range: 0 to 1 inch.	10.00

### ONE-INCH MICROMETER CALIPER FOR TUBING

Enameled, Heavy, Ribbed Frame

For Measuring by Thousandths

2911	Plain.....	Range: 0 to 1 inch.	\$7.25
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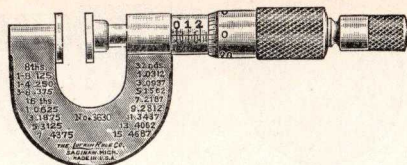
Packing: One in a box.

Weight each:  $\frac{1}{2}$ -inch 3 ozs. 1-inch 7 ozs.

NOTES: Metric Tubing Micrometers—These in ranges 0 to 13 and 0 to 25 mm., can also be supplied. Prices same as corresponding  $\frac{1}{2}$  and 1-inch sizes.

General Description of Micrometer Calipers—See pages 139 to 141.





### Paper Gage Micrometer Calipers. $\frac{3}{8}$ Inch.

(PATENTED)

## Full Finished Frame

### Rapid Reading (each thousandth numbered)

Designed for measuring the thickness of paper, sheet rubber, cardboard and other soft materials. The measuring surfaces being large, ( $\frac{7}{16}$  inch in diameter), do not compress the material as much as the regular anvil and spindle, so measurements are taken more quickly and accurately.

## Paper Gage Micrometers for Measuring by Thousandths

Number		Price Each
<b>3610</b>	Plain.....Range: 0 to $\frac{3}{8}$ inch.	\$ 9.50
<b>3630</b>	With Ratchet Stop.....Range: 0 to $\frac{3}{8}$ inch.	10.00

**Metric Paper Gage Micrometer Calipers. 9 MM.**

### Full Finished Frame

These Micrometers have large measuring faces just as described above.

### For Measuring by Hundredths of a Millimeter

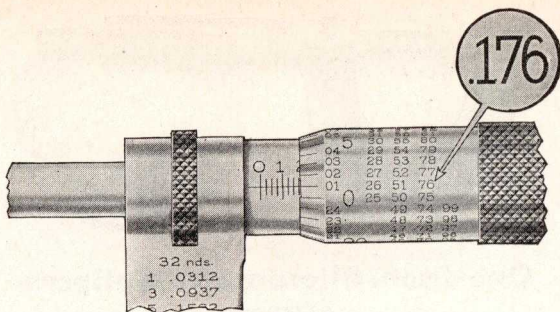
<b>3610M</b>	Plain .....	Range: 0 to 9 mm.	\$ 9.50
<b>3630M</b>	With Ratchet Stop .....	Range: 0 to 9 mm.	10.00

Finger Ring, attached to any of above Micrometers, furnished when specified.

Extra for Finger Ring.....	1.00
----------------------------	------

Packing: One in a box. Weight each: 3 ounces

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.



## Direct Indicating One-Inch Micrometer Calipers

(PATENTED)

### Full Finished, Cut Away Frame

These Micrometers give the total reading of the measurement, avoiding additions which are always a chance for error. They have no complicated gears or counters. The total reading is shown at a glance by an ingenious arrangement of figures on the sleeve.

The hub markings are same as on regular type Micrometers: the hundreds of thousandths are indicated by long lines, numbered 0 to 9; the shorter, intermediate lines, which are in groups of three, indicate .025, .050 and .075 inch respectively. The sleeve is notched or cut away at the zero point so that at each revolution of the spindle a new line comes instantly into view when zero is reached. On the sleeve a row of figures from 0 to 24 is shown nearest the edge. To the right of that is a group of three rows of figures indicating 25 to 49, 50 to 74 and 75 to 99, so arranged in spiral form that each row carries into the next without jumping over.

### Directions for Reading

Note on the hub the last line in view. If it is a long line, read in edge column on sleeve. If it is the first short line, read in first row of figures in the group of three. If the second short line shows, read in second row of the group of three; if third line, read in third row. Prefix to this reading the figure indicating hundreds of thousandths. You then have the full reading without any calculation, no chance of errors in addition as by the old method.

On these "Direct Indicating" Micrometers it is as simple as on any others to read measurement by the old method, and the new user of them may wish to so verify his first readings. Practice will soon convince him that this "Direct Indicating" method of reading is practical and positive, saves time and avoids errors.

Micrometer No. 1641V-DI will read to one ten-thousandths part of an inch. With it, the thousandths are read as detailed above, the ten-thousandths by using the vernier graduations on the hub in the manner described page 140.

### For Measuring by Thousandths

Number		Price Each
1641DI	With Lock Nut and Ratchet Stop.....Range: 0 to 1 inch.	\$11.00

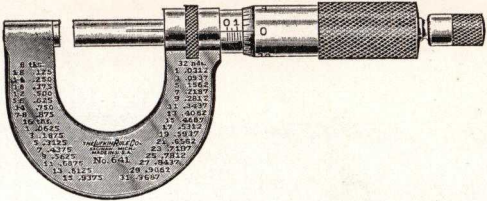
### For Measuring by Ten-thousandths

1641V-DI	With Lock Nut and Ratchet Stop.....Range: 0 to 1 inch.	12.75
----------	--	-------

Packing: One in a box. Weight each: 7 ounces

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.





One-Inch Micrometer Calipers

(PATENTED)

Full Finished Frame

Rapid Reading (each thousandth numbered)

For Measuring by Thousandths

Number			Price Each
611	Plain.....	Range: 0 to 1 inch.	\$ 8.50
621	With Lock Nut.....	Range: 0 to 1 inch.	9.50
631	With Ratchet Stop.....	Range: 0 to 1 inch.	9.00
641	With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.	10.00

For Measuring by Ten-thousandths

611V	Plain.....	Range: 0 to 1 inch.	\$10.25
621V	With Lock Nut.....	Range: 0 to 1 inch.	11.25
631V	With Ratchet Stop.....	Range: 0 to 1 inch.	10.75
641V	With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.	11.75

Metric Micrometer Calipers. 25 MM.

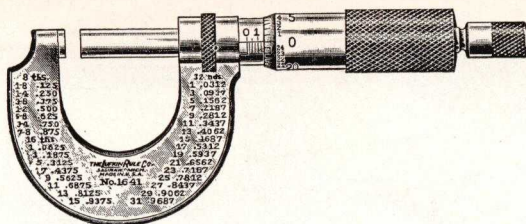
Full Finished Frame

For Measuring by Hundredths of a Millimeter

611M	Plain.....	Range: 0 to 25 mm.	\$ 8.50
621M	With Lock Nut.....	Range: 0 to 25 mm.	9.50
631M	With Ratchet Stop.....	Range: 0 to 25 mm.	9.00
641M	With Lock Nut and Ratchet Stop.....	Range: 0 to 25 mm.	10.00

Packing: One in a box. Weight each: 7 ounces

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.



## One-Inch Micrometer Calipers

(PATENTED)

Full Finished, Cut Away Frame

Rapid Reading (each thousandth numbered)

Having cut away frame, these Micrometers are suitable for taking many measurements where those without this feature could not be used. The combined depth of anvil and frame of these Micrometers is approximately  $1\frac{1}{32}$  inch (9 mm.).

### For Measuring by Thousandths

Number			Price Each
<b>1611</b>	Plain.....	Range: 0 to 1 inch.	\$ 8.50
<b>1621</b>	With Lock Nut.....	Range: 0 to 1 inch.	9.50
<b>1631</b>	With Ratchet Stop.....	Range: 0 to 1 inch.	9.00
<b>1641</b>	With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.	10.00

### For Measuring by Ten-thousandths

<b>1611V</b>	Plain.....	Range: 0 to 1 inch.	\$10.25
<b>1621V</b>	With Lock Nut.....	Range: 0 to 1 inch.	11.25
<b>1631V</b>	With Ratchet Stop.....	Range: 0 to 1 inch.	10.75
<b>1641V</b>	With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.	11.75

## Metric Micrometer Calipers. 25 MM.

Full Finished, Cut Away Frame

(As described above)

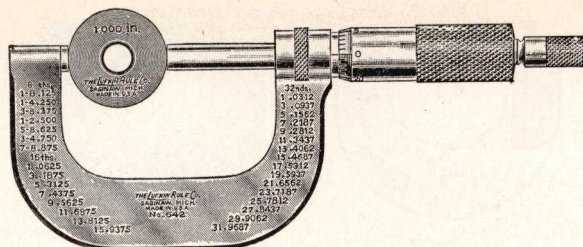
### For Measuring by Hundredths of a Millimeter

<b>1611M</b>	Plain.....	Range: 0 to 25 mm.	\$ 8.50
<b>1621M</b>	With Lock Nut.....	Range: 0 to 25 mm.	9.50
<b>1631M</b>	With Ratchet Stop.....	Range: 0 to 25 mm.	9.00
<b>1641M</b>	With Lock Nut and Ratchet Stop.....	Range: 0 to 25 mm.	10.00

Packing: One in a box. Weight each: 7 ounces

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.





## Two-Inch Micrometer Calipers

(PATENTED)

### Full Finished Frame

Rapid Reading (each thousandth numbered)

#### For Measuring by Thousandths

Number			Price Each
612	Plain	Range: 1 to 2 inches.	\$ 9.50
622	With Lock Nut	Range: 1 to 2 inches.	10.50
632	With Ratchet Stop	Range: 1 to 2 inches.	10.00
642	With Lock Nut and Ratchet Stop	Range: 1 to 2 inches.	11.00

#### For Measuring by Ten-thousandths

612V	Plain	Range: 1 to 2 inches.	\$11.25
622V	With Lock Nut	Range: 1 to 2 inches.	12.25
632V	With Ratchet Stop	Range: 1 to 2 inches.	11.75
642V	With Lock Nut and Ratchet Stop	Range: 1 to 2 inches.	12.75

One-inch test gage supplied with all above Micrometers

## Metric Micrometer Calipers. 50 MM.

### Full Finished Frame

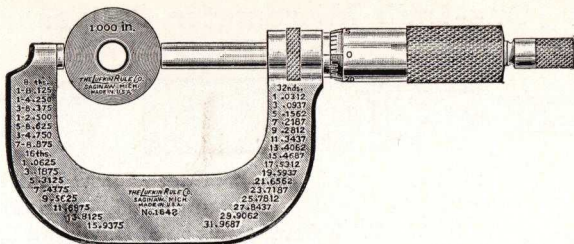
#### For Measuring by Hundredths of a Millimeter

612M	Plain	Range: 25 to 50 mm.	\$ 9.50
622M	With Lock Nut	Range: 25 to 50 mm.	10.50
632M	With Ratchet Stop	Range: 25 to 50 mm.	10.00
642M	With Lock Nut and Ratchet Stop	Range: 25 to 50 mm.	11.00

25 mm. test gage supplied with all above Micrometers

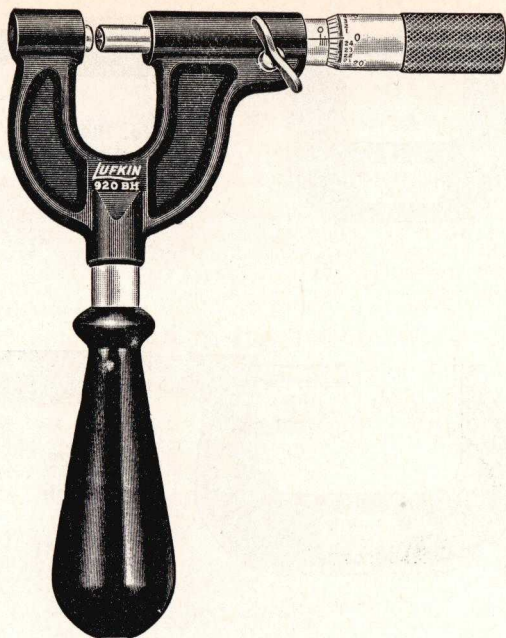
Packing: One in a box. Weight each: 10 ounces

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.









## Half-Inch Micrometer Caliper

(PATENTED)

### With Wood Handle

With Thumb Screw Lock Nut (wing head)

With Bevel on Edge of Anvil and Spindle Faces

Extra Heavy Ribbed Frame, Enameled

Rapid Reading (each thousandth numbered)

This extra sturdy Micrometer is used principally in hot mills and is especially suitable for this heavy duty. Not only is the ribbed and enameled frame of ample dimensions to be most rigid, but the spindle is of greater diameter than standard type, the other parts are in proportion, and throat is deeper.

The wood handle allows the mechanics hand to be at a considerable distance from the hot metal being gaged. This handle is of ample size and is firmly attached to the frame. The thumb screw lock nut has wing head, easiest to grasp and to lock firmly, and permitting most rapid locking and releasing. Beveled anvil and spindle faces are necessary for convenience and speed in applying the Micrometer to the work.

### For Measuring by Thousandths

Number

920BH

With Thumb Screw Lock Nut Having Wing Head.

With Wood Handle.....Range: 0 to 1/2 inch.

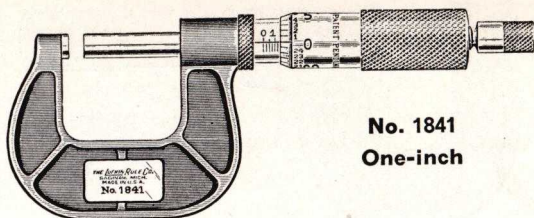
Price  
Each

\$14.50

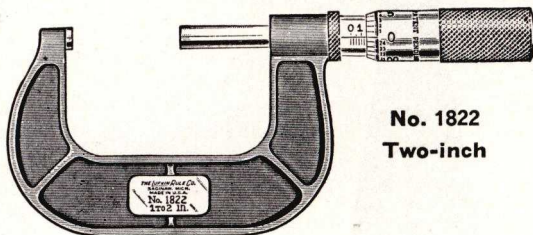
Packing: One in a box. Weight each: 15 ounces

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.

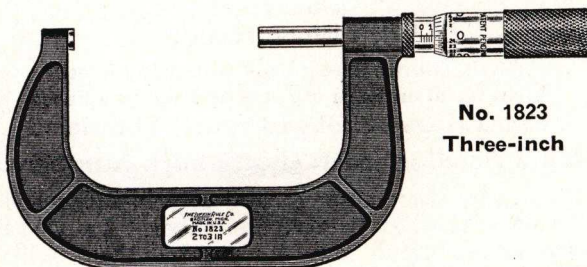




**No. 1841**  
**One-inch**



**No. 1822**  
**Two-inch**



**No. 1823**  
**Three-inch**

## **Micrometer Calipers**

(PATENTED)

**With Enameled, Medium Weight, Ribbed Frame**

**One-inch.**

**Two-inch.**

**Three-inch.**

**Rapid Reading (each thousandth numbered)**

*FOR LISTINGS AND FURTHER DESCRIPTION, SEE PAGE 153*

## Micrometer Calipers (Illustrated page 152)

(PATENTED)

**One-inch.**

**Two-inch.**

**Three-inch.**

**Enameled, Medium Weight, Ribbed Frame**

**Rapid Reading (each thousandth numbered)**

These Micrometers have found a place with mechanics, and are a type especially popular with those in inspection work.

This is our intermediate line, priced the same as our heavy ribbed Micrometers, the 1900 Series shown pages 156 and 157, but with frame of somewhat lighter weight and different shape. These Micrometers have enameled frame, edge and cross ribbed, and the difference in shape is made clear by comparing illustrations pages 152 and 156. These have spindle of same diameter as our full finished Micrometers, and have the same smooth action, high degree of accuracy and improved adjustment features.

### For Measuring by Thousandths

Number		One-inch Micrometers		Price Each
<b>1811</b>	Plain.....	Range: 0 to 1 inch.		\$ 6.25
<b>1821</b>	With Lock Nut.....	Range: 0 to 1 inch.		7.25
<b>1831</b>	With Ratchet Stop.....	Range: 0 to 1 inch.		6.75
<b>1841</b>	With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.		7.75

#### Two-inch Micrometers

<b>1812</b>	Plain.....	Range: 1 to 2 inches.	\$ 7.00
<b>1822</b>	With Lock Nut.....	Range: 1 to 2 inches.	8.00
<b>1832</b>	With Ratchet Stop.....	Range: 1 to 2 inches.	7.50
<b>1842</b>	With Lock Nut and Ratchet Stop.....	Range: 1 to 2 inches.	8.50
Extra for 1-inch Test Gage. (Supplied only when ordered).....			1.00

#### Three-inch Micrometers

<b>1813</b>	Plain.....	Range: 2 to 3 inches.	\$ 7.75
<b>1823</b>	With Lock Nut.....	Range: 2 to 3 inches.	8.75
<b>1833</b>	With Ratchet Stop.....	Range: 2 to 3 inches.	8.25
<b>1843</b>	With Lock Nut and Ratchet Stop.....	Range: 2 to 3 inches.	9.25
Extra for 2-inch Test Gage. (Supplied only when ordered.).....			1.25

### For Measuring by Ten-thousandths

#### One-inch Micrometers

<b>1811V</b>	Plain.....	Range: 0 to 1 inch.	\$ 8.00
<b>1821V</b>	With Lock Nut.....	Range: 0 to 1 inch.	9.00
<b>1831V</b>	With Ratchet Stop.....	Range: 0 to 1 inch.	8.50
<b>1841V</b>	With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.	9.50

#### Two-inch Micrometers

<b>1812V</b>	Plain.....	Range: 1 to 2 inches.	\$ 8.75
<b>1822V</b>	With Lock Nut.....	Range: 1 to 2 inches.	9.75
<b>1832V</b>	With Ratchet Stop.....	Range: 1 to 2 inches.	9.25
<b>1842V</b>	With Lock Nut and Ratchet Stop.....	Range: 1 to 2 inches.	10.25
Extra for 1-inch Test Gage. (Supplied only when ordered.).....			1.00

#### Three-inch Micrometers

<b>1813V</b>	Plain.....	Range: 2 to 3 inches.	\$ 9.50
<b>1823V</b>	With Lock Nut.....	Range: 2 to 3 inches.	10.50
<b>1833V</b>	With Ratchet Stop.....	Range: 2 to 3 inches.	10.00
<b>1843V</b>	With Lock Nut and Ratchet Stop.....	Range: 2 to 3 inches.	11.00
Extra for 2-inch Test Gage. (Supplied only when ordered.).....			1.25

Packing: One in a box

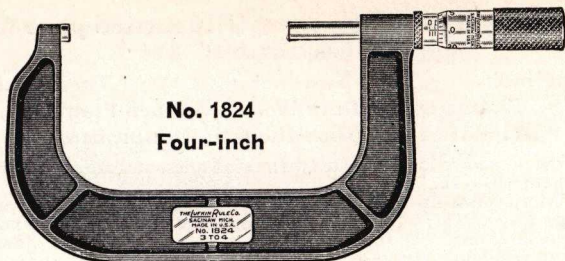
Weight each: 1-inch 6 ozs. 2-inch 8 ozs. 3-inch 10 ozs.

NOTES: Above Micrometers in 4, 5 and 6-inch Sizes—See page 155.

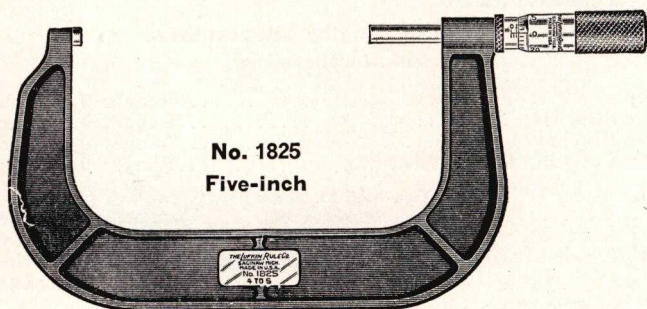
Metric Micrometers—Any above can also be supplied in metric, ranges 0 to 25, 25 to 50, and 50 to 75 mm. Prices same as corresponding 1, 2 and 3-inch. Specify by suffix "M" as "**1811M**," etc.

General Description of Micrometer Calipers—See pages 139 to 141.

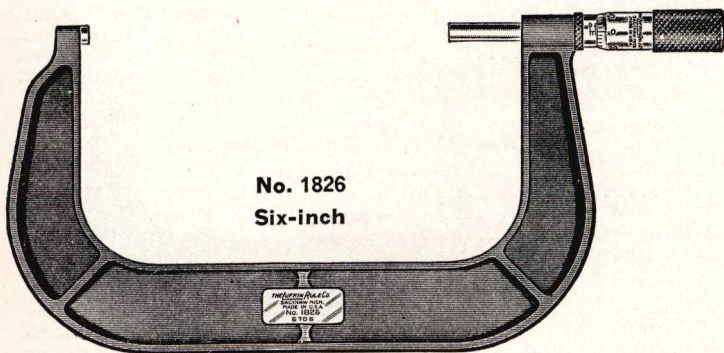




**No. 1824**  
**Four-inch**



**No. 1825**  
**Five-inch**



**No. 1826**  
**Six-inch**

## Micrometer Calipers

(PATENTED)

**With Enameled, Medium Weight, Ribbed Frame**

**Four-inch.**

**Five-inch.**

**Six-inch.**

**Rapid Reading (each thousandth numbered)**

FOR LISTINGS AND FURTHER DESCRIPTION, SEE PAGE 155

## Micrometer Calipers (Illustrated page 154)

(PATENTED)

**Four-inch.**

**Five-inch.**

**Six-inch.**

**Enameled, Medium Weight, Ribbed Frame**

**Rapid Reading (each thousandth numbered)**

These Micrometers have found a place with mechanics, and are a type especially popular with those in inspection work.

This is our intermediate line, priced the same as our heavy ribbed Micrometers, the **1900** Series shown pages 156 and 157, but with frame of somewhat lighter weight and different shape. These Micrometers have enameled frame, edge and cross ribbed, and the difference in shape is made clear by comparing illustrations pages 154 and 156. These have spindle of same diameter as our full finished Micrometers, and have the same smooth action, high degree of accuracy and improved adjustment features.

### For Measuring by Thousandths

#### Four-inch Micrometers

Number		Price Each
<b>1814</b>	Plain.....Range: 3 to 4 inches.	\$ 8.50
<b>1824</b>	With Lock Nut.....Range: 3 to 4 inches.	9.50
<b>1834</b>	With Ratchet Stop.....Range: 3 to 4 inches.	9.00
<b>1844</b>	With Lock Nut and Ratchet Stop.....Range: 3 to 4 inches.	10.00
Extra for 3-inch Test Gage. (Supplied only when ordered.).....		1.50

#### Five-inch Micrometers

<b>1815</b>	Plain.....Range: 4 to 5 inches.	\$ 9.25
<b>1825</b>	With Lock Nut.....Range: 4 to 5 inches.	10.25
<b>1835</b>	With Ratchet Stop.....Range: 4 to 5 inches.	9.75
<b>1845</b>	With Lock Nut and Ratchet Stop.....Range: 4 to 5 inches.	10.75
Extra for 4-inch Test Gage. (Supplied only when ordered.).....		1.75

#### Six-inch Micrometers

<b>1816</b>	Plain.....Range: 5 to 6 inches.	\$10.00
<b>1826</b>	With Lock Nut.....Range: 5 to 6 inches.	11.00
<b>1836</b>	With Ratchet Stop.....Range: 5 to 6 inches.	10.50
<b>1846</b>	With Lock Nut and Ratchet Stop.....Range: 5 to 6 inches.	11.50
Extra for 5-inch Test Gage. (Supplied only when ordered.).....		2.00

Packing: One in a box

Weight each: 4-inch 13 ozs. 5-inch 16 ozs. 6-inch 19 ozs.

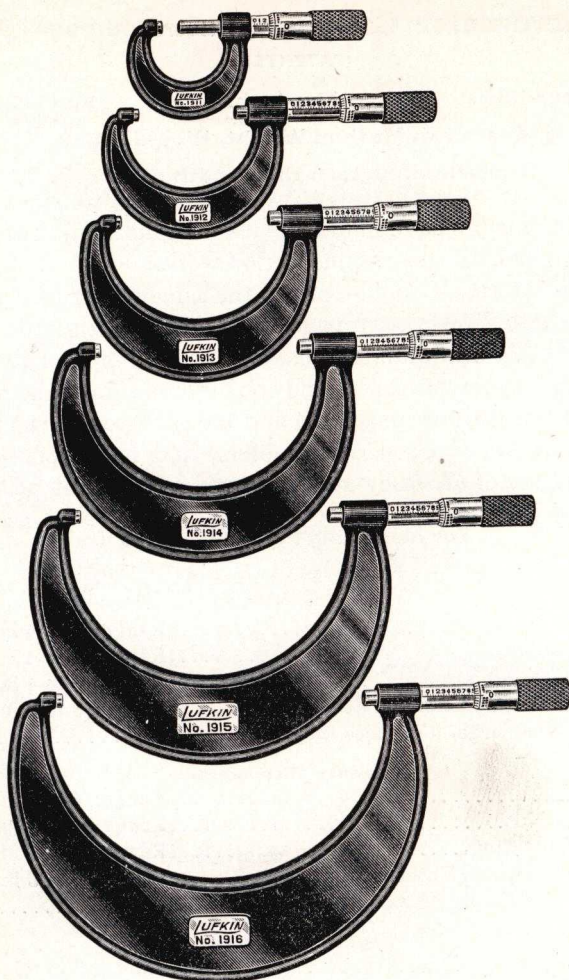
NOTES: Above Micrometers in 1, 2 and 3-inch Sizes—See page 153.

Micrometers Measuring to Ten-thousandths Inch—Any of above can be so supplied at **\$1.75** extra each. Specify by suffix "V" as "**1814V**," etc.

Metric Micrometers—Any above can be supplied in metric, ranges 75 to 100, 100 to 125 and 125 to 150 MM. Prices same as corresponding 4, 5 and 6-inch. Specify by suffix "M" as "**1814M**," etc.

General Description of Micrometer Calipers—See pages 139 to 141.





## Micrometer Calipers

(PATENTED)

With Enameled, Heavy, Ribbed Frame

One-inch.

Two-inch.  
Five-inch.

Three-inch.  
Six-inch.

Four-inch.

Rapid Reading (each thousandth numbered)

FOR LISTINGS AND FURTHER DESCRIPTION, SEE PAGE 157

## Micrometer Calipers (Illustrated page 156)

(PATENTED)

**One-inch. Two-inch. Three-inch. Four-inch. Five-inch. Six-inch.**  
**Enameled, Heavy, Ribbed Frame. Rapid Reading (each thousandth numbered)**

These are our heavy type, enameled, ribbed frame Micrometers, especially designed for production work. To withstand hard usage these have a very sturdy frame, yet they are not of excessive weight. They also have spindle of greater diameter and throat deeper than our other types. These have the same smooth action, high degree of accuracy, and improved adjustment features of all our Micrometers.

### For Measuring by Thousandths

One-inch Micrometers			Price Each
<b>1911</b> Plain.....	Range: 0 to 1 inch.		\$ 6.25
<b>1921</b> With Lock Nut.....	Range: 0 to 1 inch.		7.25
<b>1931</b> With Ratchet Stop.....	Range: 0 to 1 inch.		6.75
<b>1941</b> With Lock Nut and Ratchet Stop.....	Range: 0 to 1 inch.		7.75
Two-inch Micrometers			
<b>1912</b> Plain.....	Range: 1 to 2 inches.		\$ 7.00
<b>1922</b> With Lock Nut.....	Range: 1 to 2 inches.		8.00
<b>1932</b> With Ratchet Stop.....	Range: 1 to 2 inches.		7.50
<b>1942</b> With Lock Nut and Ratchet Stop.....	Range: 1 to 2 inches.		8.50
Extra for 1-inch Test Gage. (Supplied only when ordered.).....			1.00
Three-inch Micrometers			
<b>1913</b> Plain.....	Range: 2 to 3 inches.		\$ 7.75
<b>1923</b> With Lock Nut.....	Range: 2 to 3 inches.		8.75
<b>1933</b> With Ratchet Stop.....	Range: 2 to 3 inches.		8.25
<b>1943</b> With Lock Nut and Ratchet Stop.....	Range: 2 to 3 inches.		9.25
Extra for 2-inch Test Gage. (Supplied only when ordered.).....			1.25
Four-inch Micrometers			
<b>1914</b> Plain.....	Range: 3 to 4 inches.		\$ 8.50
<b>1924</b> With Lock Nut.....	Range: 3 to 4 inches.		9.50
<b>1934</b> With Ratchet Stop.....	Range: 3 to 4 inches.		9.00
<b>1944</b> With Lock Nut and Ratchet Stop.....	Range: 3 to 4 inches.		10.00
Extra for 3-inch Test Gage. (Supplied only when ordered.).....			1.50
Five-inch Micrometers			
<b>1915</b> Plain.....	Range: 4 to 5 inches.		\$ 9.25
<b>1925</b> With Lock Nut.....	Range: 4 to 5 inches.		10.25
<b>1935</b> With Ratchet Stop.....	Range: 4 to 5 inches.		9.75
<b>1945</b> With Lock Nut and Ratchet Stop.....	Range: 4 to 5 inches.		10.75
Extra for 4-inch Test Gage. (Supplied only when ordered.).....			1.75
Six-inch Micrometers			
<b>1916</b> Plain.....	Range: 5 to 6 inches.		\$ 10.00
<b>1926</b> With Lock Nut.....	Range: 5 to 6 inches.		11.00
<b>1936</b> With Ratchet Stop.....	Range: 5 to 6 inches.		10.50
<b>1946</b> With Lock Nut and Ratchet Stop.....	Range: 5 to 6 inches.		11.50
Extra for 5-inch Test Gage. (Supplied only when ordered.).....			2.00

Packing: One in a box

Weight each: 1, 2, 3, 4, 5 and 6-inch—7, 9, 12, 19, 22 and 27 ozs.

NOTES: Above Micrometers in 7 to 12-inch Sizes—See page 159.

Micrometers Measuring to Ten-thousandths Inch—Any of above can be so supplied at \$1.75 extra each. Specify by suffix "V" as "**1941V**," etc.

Metric—Above Micrometers can be supplied in Metric at prices same as corresponding sizes in inches. Specify by suffix "M" as "**1911M**," etc.

General Description of Micrometer Calipers—See pages 139 to 141.



## Micrometer Calipers

(PATENTED)

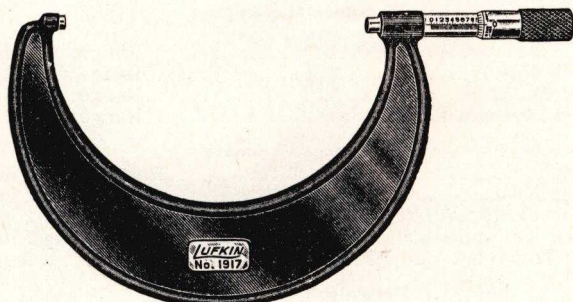
Seven-inch.

Eight-inch.  
Eleven-inch.Nine-inch.  
Twelve-inch.

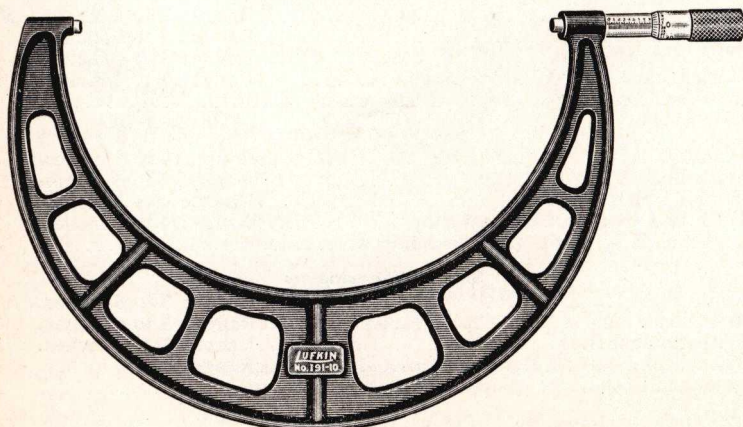
Ten-inch.

All Have  
Enamelled, Heavy, Ribbed Frame  
Rapid Reading (each thousandth numbered)

FOR LISTINGS AND FURTHER DESCRIPTION, SEE PAGE 159



Seven, Eight and Nine-inch Micrometers  
Nos. 1917 to 1929 Inclusive  
Are of above Pattern  
(Frame Not Perforated)



Ten, Eleven and Twelve-inch Micrometers  
Nos. 191-10 to 192-12 Inclusive  
Are of above Pattern  
(Frame Perforated)

## Micrometer Calipers (Illustrated page 158)

(PATENTED)

**Seven-inch. Eight-inch. Nine-inch. Ten-inch. Eleven-inch. Twelve-inch.**

**Enameled, Heavy, Ribbed Frame**

**Rapid Reading (each thousandth numbered)**

These are our heavy type, enameled, ribbed frame Micrometers, especially designed for production work. To withstand hard usage these have a very sturdy frame, yet they are not of excessive weight (frames of the 10, 11 and 12-inch sizes are perforated as illustrated, this to save weight). All Micrometers listed on this page have spindle of extra diameter and have deep throat. These have the same smooth action, high degree of accuracy, and improved adjustment features of all our Micrometers.

### For Measuring by Thousandths

Number		Seven-inch Micrometers	Price Each
1917	Plain	Range: 6 to 7 inches.	\$11.00
1927	With Lock Nut	Range: 6 to 7 inches.	12.00
Extra for 6-inch Test Gage. (Supplied only when ordered.)			2.25
Eight-inch Micrometers			
1918	Plain	Range: 7 to 8 inches.	\$12.00
1928	With Lock Nut	Range: 7 to 8 inches.	13.00
Extra for 7-inch Test Gage. (Supplied only when ordered.)			2.50
Nine-inch Micrometers			
1919	Plain	Range: 8 to 9 inches.	\$13.00
1929	With Lock Nut	Range: 8 to 9 inches.	14.00
Extra for 8-inch Test Gage. (Supplied only when ordered.)			2.75
Ten-inch Micrometers			
191-10	Plain	Range: 9 to 10 inches.	\$14.00
192-10	With Lock Nut	Range: 9 to 10 inches.	15.00
Extra for 9-inch Test Gage. (Supplied only when ordered.)			3.00
Eleven-inch Micrometers			
191-11	Plain	Range: 10 to 11 inches.	\$15.00
192-11	With Lock Nut	Range: 10 to 11 inches.	16.00
Extra for 10-inch Test Gage. (Supplied only when ordered.)			3.25
Twelve-inch Micrometers			
191-12	Plain	Range: 11 to 12 inches.	\$16.00
192-12	With Lock Nut	Range: 11 to 12 inches.	17.00
Extra for 11-inch Test Gage. (Supplied only when ordered.)			3.50
Ratchet Stop on Any of Above Micrometers, Extra			.50

Packing: One only in hinged wooden box with clasp

Weight each: 7, 8, 9, 10, 11, and 12-inch.  $3\frac{1}{2}$ ,  $4\frac{1}{4}$ ,  $5\frac{1}{4}$ ,  $5\frac{3}{4}$ ,  $7$ ,  $7\frac{3}{4}$  lbs.

NOTES: Above Type of Micrometers in 1 to 6-inch Sizes—See page 157.

Metric—Above Micrometers can be supplied in Metric at prices same as corresponding sizes in inches. Specify by suffix "M" as "**1917M**," etc.

General Description of Micrometer Calipers—See pages 139 to 141.



## Micrometer Caliper Sets in Wood Cases

The Micrometer Caliper Sets listed on page 161, are supplied with Cases as here illustrated. These wood Cases are solidly built and well finished. They have hinged cover and clasp and they nicely accommodate the Micrometers and the Test Gages.



**Set No. 184A. 0 to 3-inch**

(Similar Case is supplied with the other 0 to 3-inch Sets)



**Set. No. 194C. 0 to 6-inch**

(Similar Case is supplied with the other 0 to 6-inch Sets)

## Micrometer Caliper Sets in Wood Cases

(Sets illustrated and cases described page 160)

**All Have Rapid Reading (each thousandth numbered)**

**All Are for Measuring by Thousandths**

### 0 to 3-inch Sets

#### Enameled, Medium Weight, Ribbed Frame

Set No.			Price, per Set	
			With Test Gages	Without Test Gages
<b>181A</b>	Plain.....	1811—1"; 1812—2"; 1813—3".	\$27.25	\$25.00
<b>182A</b>	With Lock Nut.....	1821—1"; 1822—2"; 1823—3".	30.25	28.00
<b>183A</b>	With Ratchet Stop.....	1831—1"; 1832—2"; 1833—3".	28.75	26.50
<b>184A</b>	With Lock and Ratchet...	1841—1"; 1842—2"; 1843—3".	31.75	29.50

Further description of above Micrometers, page 153.

### 0 to 6-inch Sets

#### Enameled, Medium Weight, Ribbed Frame

<b>181C</b>	Plain.....	1811—1"; 1812—2"; 1813—3". 1814—4"; 1815—5"; 1816—6".	\$63.75	\$56.25
<b>182C</b>	With Lock Nut.....	1821—1"; 1822—2"; 1823—3". 1824—4"; 1825—5"; 1826—6".		
<b>183C</b>	With Ratchet Stop.....	1831—1"; 1832—2"; 1833—3". 1834—4"; 1835—5"; 1836—6".	69.75	62.25
<b>184C</b>	With Lock and Ratchet...	1841—1"; 1842—2"; 1843—3". 1844—4"; 1845—5"; 1846—6".	66.75	59.25
			72.75	65.25

Further description of above Micrometers, pages 153 and 155.

### 0 to 3-inch Sets

#### Enameled, Heavy, Ribbed Frame

<b>191A</b>	Plain.....	1911—1"; 1912—2"; 1913—3".	\$27.25	\$25.00
<b>192A</b>	With Lock Nut.....	1921—1"; 1922—2"; 1923—3".	30.25	28.00
<b>193A</b>	With Ratchet Stop.....	1931—1"; 1932—2"; 1933—3".	28.75	26.50
<b>194A</b>	With Lock and Ratchet...	1941—1"; 1942—2"; 1943—3".	31.75	29.50

Further description of above Micrometers, page 157.

### 0 to 6-inch Sets

#### Enameled, Heavy, Ribbed Frame

<b>191C</b>	Plain.....	1911—1"; 1912—2"; 1913—3". 1914—4"; 1915—5"; 1916—6".	\$63.75	\$56.25
<b>192C</b>	With Lock Nut.....	1921—1"; 1922—2"; 1923—3". 1924—4"; 1925—5"; 1926—6".		
<b>193C</b>	With Ratchet Stop.....	1931—1"; 1932—2"; 1933—3". 1934—4"; 1935—5"; 1936—6".	69.75	62.25
<b>194C</b>	With Lock and Ratchet...	1941—1"; 1942—2"; 1943—3". 1944—4"; 1945—5"; 1946—6".	66.75	59.25
			72.75	65.25

Further description of above Micrometers, page 157.

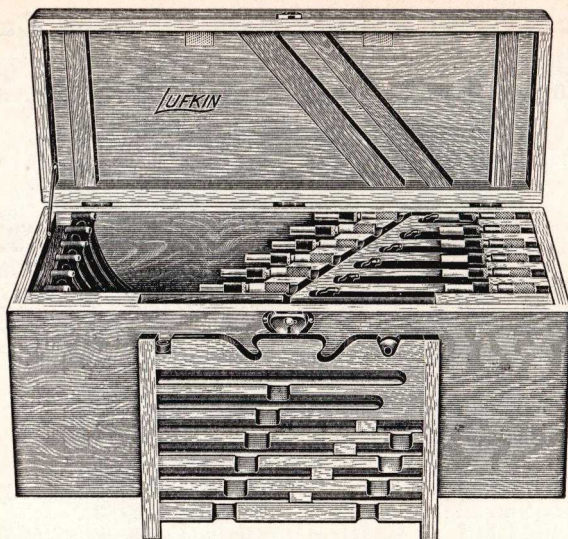
NOTES: Test Gages—Supplied with all above sets unless otherwise specified.

Micrometers Measuring to Ten-thousandths Inch—Any of the above sets can be so supplied at extra charge of \$5.25 on sets of three, \$10.50 on sets of six. Specify by suffix "V" as "Set No. 181V-A," etc.

Metric Micrometers—Any of above sets can be so supplied at price same as corresponding sets in inches. Specify by suffix "M" as "Set No. 181M-A," etc.

Other Sets of Micrometer Calipers—See page 162.





## Micrometer Caliper Sets in Wood Cases

On this page are listed sets of larger Micrometers (6 to 12-inch); also larger sets (0 to 12-inch).

The case supplied with each of these sets is solidly built of oak, well finished, and fitted with a hinged cover and good lock. The test gage rack, also illustrated above, fits into a compartment in the front of the case.

**All Have Enamelled, Heavy, Ribbed Frame**

**All Have Rapid Reading (each thousandth numbered)**

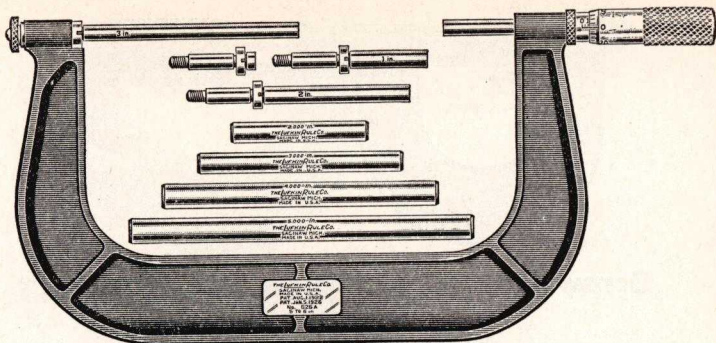
**All Are for Measuring by Thousandths**

Set No.		6 to 12-inch Sets	
		Price, per Set With Test Gages	Without Test Gages
<b>191D</b>	Plain. 1917, 7"; 1918, 8"; 1919, 9"; 191-10, 10"; 191-11, 11"; 191-12, 12".....	\$104.25	\$ 87.00
<b>192D</b>	With Lock Nut. 1927, 7"; 1928, 8"; 1929, 9"; 192-10, 10"; 192-11, 11"; 192-12, 12".....	110.25	93.00
	Ratchet Stop on above Micrometers.....	Extra per set. \$3.00	
Set No.		0 to 12-inch Sets	
		Price, per Set With Test Gages	Without Test Gages
<b>191E</b>	Plain. 1911, 1"; 1912, 2"; 1913, 3"; 1914, 4"; 1915, 5"; 1916, 6"; 1917, 7"; 1918, 8"; 1919, 9"; 191-10, 10"; 191-11, 11"; 191-12, 12".....	\$164.00	\$139.25
<b>192E</b>	With Lock Nut. 1921, 1"; 1922, 2"; 1923, 3"; 1924, 4"; 1925, 5"; 1926, 6"; 1927, 7"; 1928, 8"; 1929, 9"; 192-10, 10"; 192-11, 11"; 192-12, 12".....	176.00	151.25
	Ratchet Stop on above Micrometers.....	Extra per set. \$6.00	

*For further description of Micrometers contained  
in Sets listed on this page, see pages 157 and 159.*

**NOTES:** Test Gages—Supplied with all above sets unless otherwise specified.  
Metric—Above Micrometers can be supplied in Metric at prices same as corresponding sets in inches. Specify by suffix "M" as "Set No. 191M-D," etc.  
Other Sets of Micrometer Calipers—See page 161.





## Micrometer Calipers with Interchangeable Anvils (PATENTED)

1 to 4-inch.      0 to 4-inch.      2 to 6-inch.

**Enameled, Medium Weight, Ribbed Frame**  
**Rapid Reading (each thousandth numbered)**

These Micrometers are designed particularly for garage and machine shop work. They have a wide range of measurement, made possible by a set of interchangeable anvils. These anvils are quickly and easily changed and are securely held with a knurled nut. In addition to having our standard adjustment features, these Micrometers have each anvil equipped with an adjusting nut to maintain its individual length.

### For Measuring by Thousandths

Number	1 to 4-inch Micrometers	Price, Each	
		With Test Gages	Without Test Gages
824A	With Lock Nut.....Range: 1 to 4 inch.	\$20.75	\$17.00
844A	With Lock Nut and Ratchet Stop...Range: 1 to 4 inch.	21.25	17.50
<b>0 to 4-inch Micrometers</b>			
824AX	With Lock Nut.....Range: 0 to 4 inch.	\$21.75	\$18.00
844AX	With Lock Nut and Ratchet Stop...Range: 0 to 4 inch.	22.25	18.50
<b>2 to 6-inch Micrometers</b>			
826A	With Lock Nut.....Range: 2 to 6 inch.	\$26.50	\$20.00
846A	With Lock Nut and Ratchet Stop...Range: 2 to 6 inch.	27.00	20.50

## Metric Micrometer Calipers with Interchangeable Anvils

25 to 100 MM.      50 to 150 MM.

**Enameled, Medium Weight, Ribbed Frame**

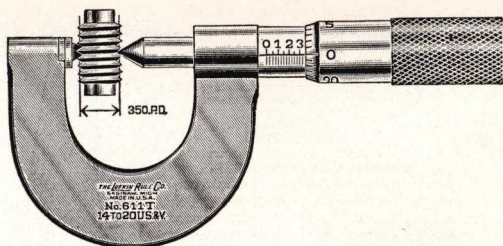
### For Measuring by Hundredths of a Millimeter

824A-M	With Lock Nut.....Range: 25 to 100 mm.	\$20.75	\$17.00
844A-M	With Lock Nut and Ratchet...Range: 25 to 100 mm.	21.25	17.50
826A-M	With Lock Nut.....Range: 50 to 150 mm.	26.50	20.00
846A-M	With Lock Nut and Ratchet...Range: 50 to 150 mm.	27.00	20.50

Packing: One only in hinged wooden box with clasp  
Weights: 22, 30 and 38 ozs. each, respectively

NOTES: Test Gages—Supplied with all above Micrometers unless otherwise specified.  
General Description of Micrometer Calipers—See pages 139 to 141.





## Screw Thread Micrometer Calipers

(PATENTED)

One-inch.

Two-inch.

Full Finished Frame

Rapid Reading (each thousandth numbered)

Screw Thread Micrometers are used for measuring screw threads on the Pitch Diameter. These are of the same general construction as our regular full finished Micrometers, and have the same improved adjustment features.

The spindle and anvil ends are shaped to conform to the standard angle of threads for which they are selected. At a direct reading these Micrometers give the Pitch Diameter, which equals the outside basic diameter less the depth of one thread. All are plain, i.e., without lock nut or ratchet stop.

*Always Specify Range of Threads in Addition to Stock Number.*

### For Measuring by Thousandths

Number	Range of Threads Per Inch	Capacity	Form of Thread	Price Each
611T	8-13 Threads	1-inch	V or U. S. Standard	\$12.00
611T	14-20 Threads	1-inch	V or U. S. Standard	12.00
611T	22-30 Threads	1-inch	V or U. S. Standard	12.00
611T	32-40 Threads	1-inch	V or U. S. Standard	12.00
612T	4½-7 Threads	2-inch	V or U. S. Standard	14.50
612T	8-13 Threads	2-inch	V or U. S. Standard	14.50
612T	14-20 Threads	2-inch	V or U. S. Standard	14.50
612T	22-30 Threads	2-inch	V or U. S. Standard	14.50

Swivel Anvils are standard and regularly furnished with all above Micrometers.

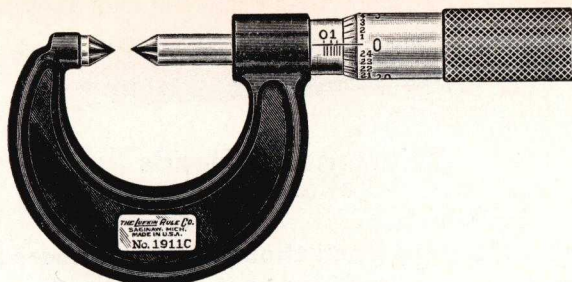
Fixed Anvils are supplied when specified; price the same.

Test Gage—A 1-inch Test Gage is furnished with each 2-inch Micrometer.

*Tables of Pitch Diameters and Other Screw Thread Data—See Pages 243 to 246.*

Packing: One in a box  
Weight each: 1-inch 7 ozs.; 2-inch 10 ozs.

NOTE: General Description of Micrometer Calipers—See pages 139 to 141.



## Thread Comparator Micrometer Caliper (PATENTED)

**Enameled, Heavy, Ribbed Frame**  
**Rapid Reading (each thousandth numbered)**

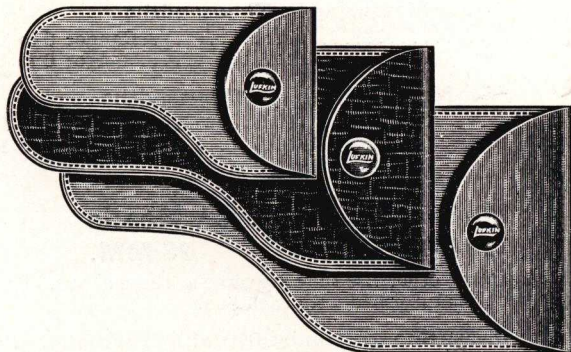
This Micrometer has many uses, although it will not measure the actual diameter of a V thread. It is especially suitable for making quick comparisons in cutting screw threads, also for measuring in small grooves or recesses where a regular Micrometer could not be used.

The anvil and spindle faces are conical, with points about  $\frac{1}{64}$ th inch flat rather than sharp. The Micrometer is at zero when these points are in contact.

### For Measuring by Thousandths

Number		Price, Each
1911C	Plain.....Range: 0 to $\frac{7}{8}$ inch.	\$7.00

Packing: One in a box. Weight each: 7 ounces



## Soft Leather Cases for Micrometer Calipers

These leather cases are light weight and flexible, yet a real protection against grit and dirt when the Micrometer is lying about or is carried in the pocket. The flap has snap fastener.

Sizes	Price, Each
For Half-Inch Micrometers.....	\$0.50
For One-Inch Micrometers.....	.50
For Two-Inch Micrometers.....	.50





## Micrometer Heads

(PATENTED)

Half-inch.

One-inch.

### Rapid Reading (each thousandth numbered)

These Heads are readily attached to machines, tools, special gages, etc., and are used where measurements with micrometer accuracy are required.

Our Micrometer Heads are adjustable, an exclusive and valuable feature. They have the same improved adjustment features, for wear, tension, etc., as our complete Micrometers. Adjusting wrench is furnished with each Head.

### Half-inch Micrometer Heads

Number	For Measuring by Thousandths	Price Each
010	Plain..... Range: 0 to $\frac{1}{2}$ inch.	\$4.50
030	With Ratchet Stop..... Range: 0 to $\frac{1}{2}$ inch.	4.50
<b>For Measuring by Ten-thousandths</b>		
010V	Plain..... Range: 0 to $\frac{1}{2}$ inch.	\$6.25
030V	With Ratchet Stop..... Range: 0 to $\frac{1}{2}$ inch.	6.25

### One-inch Micrometer Heads

	For Measuring by Thousandths	
011	Plain..... Range: 0 to 1 inch.	\$5.50
031	With Ratchet Stop..... Range: 0 to 1 inch.	5.50
<b>For Measuring by Ten-thousandths</b>		
011V	Plain..... Range: 0 to 1 inch.	\$7.25
031V	With Ratchet Stop..... Range: 0 to 1 inch.	7.25

### Metric Micrometer Heads

13 MM.

25 MM.

These Heads are metric, otherwise they are same as those above. They are adjustable and adjusting wrench is furnished with each one.

### For Measuring by Hundredths of a Millimeter

010M	Plain..... Range: 0 to 13 mm.	\$4.50
030M	With Ratchet Stop..... Range: 0 to 13 mm.	4.50
011M	Plain..... Range: 0 to 25 mm.	5.50
031M	With Ratchet Stop..... Range: 0 to 25 mm.	5.50

Length lower end of barrel to shoulder: On  $\frac{1}{2}$ -inch and 13 mm., is .392 inch (10 mm.).

On 1-inch and 25 mm., is .750 inch (19 mm.).

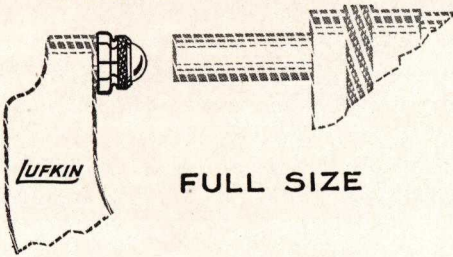
Diameter of barrel on all above Micrometer Heads is .3755 inch (9.5 mm.).

Packing: One in a box

NOTE: General Description of Micrometers—See pages 139 to 141.

## Ball Attachments for Micrometers

Fit Either the Anvil or the Spindle



FULL SIZE

These make any of our regular Micrometers suitable for measuring tubing walls, or other rounding surfaces. The Ball Attachment is readily applied and removed by the mechanic, and fitting either the anvil or the spindle, two of these Balls can be used together. Diameter of No. **16** and No. **19** Ball is .200 inch; so when used on standard Micrometers always subtract from reading .200 inch for each Ball used. Each Ball fits freely in its retainer, insuring contact with anvil or spindle. For quick identification the retainer of Ball No. **16** is bright, that of Ball No. **19** is mottled.

Ball No. **16** fits all our Micrometers excepting the No. **1900** Series, (the heavy, ribbed frame type). In other words No. **16** fits all Micrometers having anvil and spindle of diameter .250 inch.

Ball No. **19** fits Micrometers of our No. **1900** Series (the heavy, ribbed frame type).

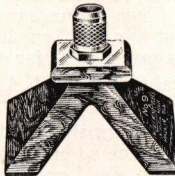
It fits all Micrometers having anvil and spindle of diameter .270 inch.

Number	Price, Each
<b>16</b> Ball Attachment.....	\$0.50
<b>19</b> Ball Attachment.....	.50

Packing: Six in a box

## Height Gage Attachments

(PATENTED)



Either of these Attachments, combined with our Inside Micrometer, can be used as a Micrometer Height Gage, very useful on jigs, fixtures and in machine construction work. Both are of same size, well proportioned, hardened and in mottled finish. Both are accurately grooved, suitable for use in lining up shafting, etc., and have knurled chuck firmly holding Inside Micrometer Rods in place.

The difference between these two Height Gage Attachments is simply this:

Number **9** is fitted with a hardened stop pin on which the Micrometer Rod rests.

The top of this stop pin is accurately ground to measure 1.500 inch from the base.

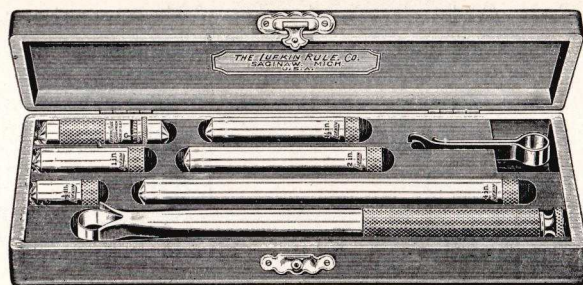
Number **9A** has hole entirely through, permitting the Micrometer Rod to rest directly on the surface from which measurement is being taken.\* This one is most suitable for work on cylindrical objects.

Number	Price, Each
<b>9</b> Height Gage Attachment. With stop pin.....	\$5.00
<b>9A</b> Height Gage Attachment. With hole through.....	5.00

Packing: One in a box. Weight each: 12 ounces

NOTE: Inside Micrometers—See pages 168 and 169.





## Inside Micrometer Calipers

(PATENTED)

*Valuable Features Found Only in **LUFKIN** Inside Micrometers Are the Following:*

**Micrometer Head** will measure down to as small as  $1\frac{1}{2}$  inches. This permits measuring the smaller diameters, slots, etc.

**Measuring Rods**, or extensions, instead of being solid, are steel tubing, light weight yet very rigid.

**Measuring Rods** can be added to either or both ends of the **Micrometer Head**, as illustrated above. Thus the Head is kept central, where mechanic can get the feel most sensitively, adjust the length most accurately, and it is also nearest in line of vision, easiest to read measurement closely. (Illustration on next page demonstrates these advantages.) This feature, maintaining the proper feel and balance of the tool, is valuable always and especially so when measuring down into a motor cylinder or other opening.

**Each Measuring Rod** is adjustable for length, by means of the hardened plug at one end.

**Handle** (shown in box above and furnished with Sets **680A**, **680B** and **6801D**) also maintains that perfect balance so essential to accuracy, because it may be attached anywhere along the Head or the extension rods.

Each **Measuring Rod** is marked with its length. Rods are attached to **Micrometer Head** by removing, with the frictional wrench supplied, the hardened end or anvil of the Head. When these Sets leave the factory each extension rod is adjusted to measure correctly overall with the Head. Should the hardened caps on the Head show wear, a method of adjustment in the Head is provided (slip the frictional wrench over the graduated sleeve and rotate same in either direction in the thimble until zero line coincides with reading on the hub). As this would affect the measurement when extension rods are used, each rod is individually adjustable, by means of a hardened and ground plug at one end, which can be turned either into or out of the rod. Should the end caps of Head become worn unequally, they can be replaced at reasonable cost.

Packing: Each Set in nicely finished wooden box as illustrated above.

FOR LISTINGS SEE NEXT PAGE



## Inside Micrometer Calipers



### Checking Inside Diameter of 30-inch Cylinder Liner for a Marine Diesel Engine

Using Inside Micrometer Number **681D**, built up with extension rod at both ends: Note that Micrometer Head is central, where it is easiest to get proper feel and to adjust Micrometer to size, and that reading point is directly in the line of vision where it is easiest to see and to read closely.

### Inside Micrometer Calipers for Measuring by Thousandths of an Inch

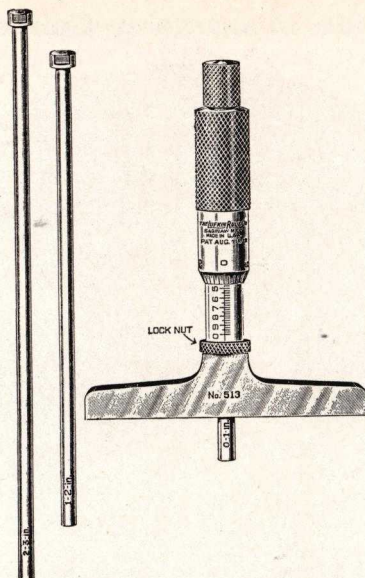
Number		Price Each
<b>680A</b>	Inside Micrometer. Range: $1\frac{1}{2}$ to 8 inches. With 5 Measuring Rods. Movement of Screw: $\frac{1}{2}$ inch.....	\$12.00
<b>680B</b>	Inside Micrometer. Range: $1\frac{1}{2}$ to 12 inches. With 8 Measuring Rods. Movement of Screw: $\frac{1}{2}$ inch.....	15.00
<b>681C</b>	Inside Micrometer. Range: 4 to 24 inches. With 7 Measuring Rods. Movement of Screw: 1 inch.....	18.00
<b>681D</b>	Inside Micrometer. Range: 4 to 32 inches. With 8 Measuring Rods. Movement of Screw: 1 inch.....	20.00
<b>681K</b>	Inside Micrometer. Range: 4 to 40 inches. With 10 Measuring Rods. Movement of Screw: 1 inch.....	24.00
<b>6801D</b>	Inside Micrometer. Range: $1\frac{1}{2}$ to 32 inches. With 10 Measuring Rods. Movement of Screw: $\frac{1}{2}$ and 1 inch (two heads).....	30.00

Packing: See page 168. Weight each:  $8\frac{1}{2}$ , 12, 27, 39, 48 and 56 ounces respectively

Extra Extension Rods, to increase the range of a Set, can be supplied.

NOTE: Height Gage Attachments for Inside Micrometers—See page 167.





## Micrometer Depth Gages

(PATENTED)

**Standard Oblong Base. Lock Nut. One-inch Movement.**  
**Rapid Reading (each thousandth numbered)**

Designed for measuring the depth of holes, slots, etc., with micrometer accuracy. Each Gage is provided with three rods, which permit measurements from zero to three inches by thousandths. Rods are approximately  $\frac{5}{32}$  inch in diameter.

The rods are inserted through a hole in the screw and are securely fastened by means of a knurled cap. To compensate for wear, each rod is equipped with an adjusting nut to maintain its individual length. The end of each rod is hardened and lapped. These Gages have knurled surface on top of base at both sides of head, affording the firm hold essential for accurate measurements.

An exclusive feature in our Micrometer Depth Gages is the patent lock nut locking the rod at any point, permitting the reading to be maintained.

### For Measuring by Thousandths

Number			Price, Each
<b>513</b>	Micrometer Depth Gage.....	3-inch Base. Range: 0 to 3 inch.	\$10.50
<b>515</b>	Micrometer Depth Gage.....	5-inch Base. Range: 0 to 3 inch.	13.50

### For Measuring by Hundredths of a Millimeter

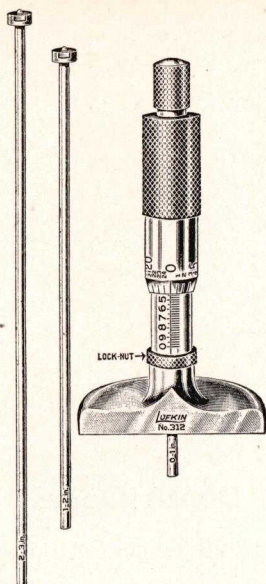
<b>513M</b>	Metric Micrometer Depth Gage..	3-inch Base. Range: 0 to 75 mm.	\$10.50
Ratchet Stop—Supplied on any above when ordered. Extra each.....			.50

Packing: One only in hinged wooden box with clasp

Weight each: Nos. **513** and **513M**... 12 ozs., No. **515**... 18 ozs.

Extra Rods for Micrometer Depth Gages Nos. **513** and **515**  
 (Extending range to 6 inches)

3 to 4 inch Rod.....	Each	\$1.50
4 to 5 inch Rod.....	Each	1.60
5 to 6 inch Rod.....	Each	1.70



## Micrometer Depth Gage

(PATENTED)

**Half-Round Base. Lock Nut. One-inch Movement.**

**Rapid Reading (each thousandth numbered)**

This Micrometer Depth Gage is particularly adapted for use in small places and in very small holes, slots, etc. The diameter of the half-round base is but two inches, and of the measuring rods but  $\frac{3}{32}$  inch.

The perfect balance of this tool allows it to be placed right to the edge of the work and with the greater bearing and holding surfaces, due to the half-round base, a better feel and more accurate readings are obtained.

Three rods are furnished with this Gage, giving measurements from zero to three inches by thousandths. The rods are inserted through a hole in the screw and are securely fastened by the knurled cap. To compensate for wear, each rod is equipped with an adjusting nut to maintain its length. The end of each rod is hardened and lapped.

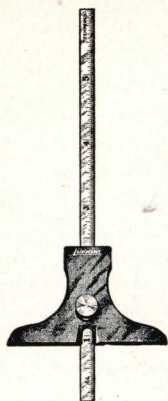
This Gage has patent lock nut which permits the reading to be maintained.

### For Measuring by Thousandths

Number	Price Each
<b>312</b> Micrometer Depth Gage. 2-inch Half-Round Base. Range: 0 to 3 inch.	\$10.50
Ratchet Stop—Supplied when ordered. Extra each.....	.50

Packing: One only in hinged wooden box with clasp  
Weight each: 18 ozs.





No. 510



No. 512

## Depth Gages

These are very handy Depth Gages for tool and die makers, machinists and others.

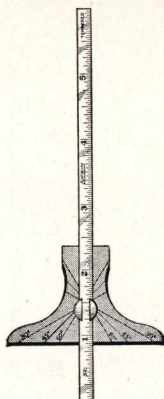
All heads are of steel, case-hardened, designed to fit the hand nicely, and well finished. Heads give good range as they are  $2\frac{1}{2}$  inches wide across the base and  $\frac{1}{8}$  inch thick (approximately 63x3 millimeters). Heads are deeply notched on one side so graduations can be most easily read.

All blades are tempered, machine divided, and fitted in slot of head. They can be securely clamped at any point by means of knurled nut and tension spring. They are removable for use separately as scales. These are the only Depth Gages having graduations on the round rod.

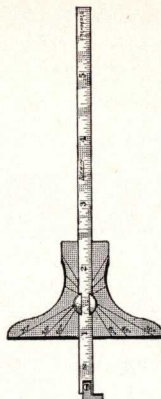
Number		Price Each
<b>510</b>	<b>6-inch Depth Gage.</b> With Narrow ( $\frac{3}{16}$ inch) Spring Tempered Rule. Rule marked one side 32nds, other side 64ths inch. (Rule No. 2310)...	\$1.50
<b>512</b>	<b>6-inch Depth Gage.</b> With Round, Graduated Rod. Rod, while round, is graduated, a distinctive feature. It is tempered and being but $\frac{1}{10}$ inch in diameter, gives access to small holes. Rod is graduated 4 inches to 32nds. Measurement is arrived at without the additional use of a rule, making this the ideal tool of its kind.....	1.50
<b>510M</b>	<b>15-centimeter Depth Gage.</b> With 5 mm. wide Spring Tempered Rule. Rule marked one side millimeters, other side $\frac{1}{2}$ mm. (Rule No. 2300M)	1.50
<b>512M</b>	<b>15-centimeter Depth Gage.</b> With Round, Graduated Rod. Rod is tempered and being approximately $2\frac{1}{2}$ millimeters in diameter, gives access to small holes. Rod is graduated 10 centimeters to millimeters. Measurement is arrived at without the additional use of a rule.....	1.50

Packing: One in a box. Weight each: 2 ounces

NOTE: Micrometer Depth Gages—See pages 170 and 171.



No. 511



No. H-511

## Depth Gages

### Combination Depth Gage and Hook Rule

These are very handy Depth Gages for tool and die makers, machinists and others. All have degree lines on head, to which rule can be swung and set, serving as a Protractor for some kinds of work.

All heads are of steel, case-hardened, designed to fit the hand nicely, and well-finished. Heads give good range as they are  $2\frac{1}{2}$  inches wide across the base and  $\frac{1}{8}$  inch thick (approximately 63x3 millimeters). Heads are deeply notched on one side so graduations can be most easily read.

All blades (rules) are tempered, machine divided, and fitted in slot of head. They can be securely clamped at any point by means of knurled nut and tension spring. They are removable for use separately as scales.

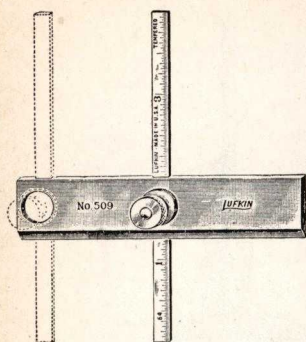
Number **H-511** is same as No. **511** except rule has hook, i.e., is a standard narrow pattern Hook Rule. This makes a convenient tool for certain kinds of calipering work. It serves well as a Depth Gage also, the hook being readily detached by giving eccentric stud a half turn.

Number		Price Each
<b>511</b>	<b>6-inch Depth Gage. With Degree Lines on Head.</b> With Narrow ( $\frac{3}{16}$ inch) Spring Tempered Rule. Rule marked one side 32nds, other side 64ths inch. (Rule No. 2310). One side of head is marked, both right and left, with 30, 45 and 60-degree lines, to which rule can be swung and set, making a simple protractor suitable for certain classes of work. ....	\$2.25
<b>H-511</b>	<b>6-inch Combination Depth Gage and Hook Rule.</b> With Degree Lines on Head, as described above. With $\frac{3}{16}$ inch wide Spring Tempered Rule with Hook. Rule marked one side 32nds, other side 64ths inch. (Rule No. H-2310) .....	2.75
<b>511M</b>	<b>15-centimeter Depth Gage.</b> With Degree Lines on Head, as described above. With 5 mm., wide Spring Tempered Rule. Rule marked one side millimeters, other side $\frac{1}{2}$ mm. (Rule No. 2300M) .....	2.25

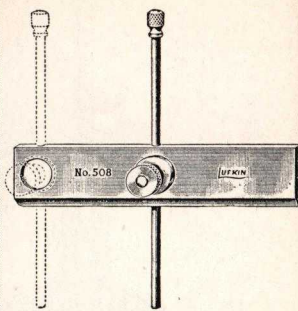
Packing: One in a box. Weight each: 2 ounces

NOTE: Micrometer Depth Gages—See pages 170 and 171.





No. 509A



No. 508A

## Depth Gages

These Depth Gages are for use where a wider base is necessary to properly carry over the space to be measured. They have bases  $3\frac{1}{2}$  inches, or 6 inches, or 10 inches wide, a range covering almost any requirement.

The narrow steel rules and the round rods slide in a groove properly fitted for them and can be securely clamped at any point by means of a knurled nut and tension spring. The rules are but  $\frac{3}{16}$  inch wide, the rods  $\frac{1}{10}$  inch in diameter, and all are tempered. All can be used in two positions, either at center or end of the base, most suitable for taking difficult measurements. The measuring edge of the base is beveled to give a line contact with the surface of the work being gaged.

The machine divided steel rules are graduated one side 32nds, other side 64ths inch (Rule No. 2310). Removed from base they can be used separately as scales. The round rod of Gages 508A, B and C is not graduated.

### Depth Gages with Graduated Steel Rule

Number			Price Each
509A	With $3\frac{1}{2}$ -inch Base.	With 4-inch Rule.....	\$1.50
509B	With $3\frac{1}{2}$ -inch Base.	With 6-inch Rule.....	1.80
509C	With 6 -inch Base.	With 4-inch Rule.....	1.80
509D	With 6 -inch Base.	With 6-inch Rule.....	2.10
509E	With 10 -inch Base.	With 6-inch Rule.....	2.70

### Depth Gages with Round Rod

508A	With $3\frac{1}{2}$ -inch Base.	With $3\frac{1}{2}$ -inch Rod.....	\$0.90
508B	With 6 -inch Base.	With 6 -inch Rod.....	1.40
508C	With 10 -inch Base.	With 6 -inch Rod.....	1.65

Packing: One in a box

Weight each: with  $3\frac{1}{2}$ " base—3 ozs.; 6" base—4 ozs.; 10" base—6 ozs.

NOTES: Metric—Number 509 series Depth Gages can be furnished with metric rule (Rule No. 2300M). Prices same as Gages with corresponding length rule in inches. Micrometer Depth Gages—See pages 170 and 171.





## Combination Squares—Bevel Protractors Combination Sets

(PAGES 176 TO 183)

### General Description

These tools have so many and such varied uses as to be almost indispensable to all mechanics in metal working, machinists, pattern makers and others. They consist of a steel rule (or blade) on which slide the square head (or stock), the center head and the protractor head, singly or in sets.

We offer Combination Squares and Combination Sets of two kinds: with square and center heads drop forged and hardened; with square and center heads cast, sometimes known as "not hardened." We catalogue them with blades in all graduations commonly required. Our Squares have many improved features. Accuracy and provisions to insure continued accuracy in use are the first consideration in their design and manufacture.

All blades are tempered. All blades are machine divided, markings being most legible. All heads are nicely enameled. The polished and the enameled parts of all heads are well finished. All heads can be accurately, quickly and securely set at any point along the blade. Blades can easily be entirely removed for use separately as rules. Square heads have square and miter faces, and in all sizes (except the 4-inch standard and No. 135) are equipped with level glass and steel scriber. All protractor heads have level. There is good clearance around all set nuts and over the level glasses. Our Squares handle nicely and present a well balanced, fine appearance. All parts are interchangeable.

*Below are mentioned but a few of their many uses*

### Combination Squares

These consist of blade with square head, or with square and center heads. They serve as both try and miter squares, and, the blade being adjustable in length by moving the head, they take the place of a whole set of common squares. They are very handy for accurately transferring measurements and for laying out work. Square face of head set flush with end of blade converts the tool into a height gage for ordinary uses, and setting it at desired distance from end of blade makes it a marking gage; so adjusted it will also serve as a depth gage for measuring and squaring in mortises, etc. The scriber is always conveniently at hand. The stock can be used as a simple level, and, with the blade, for squaring and leveling surfaces one with another.

With the center head, centers of all cylindrical work can be determined. The arms of our center heads are ground to equal length and have ends uniformly machined, greatly increasing the range of the tool by giving accurate results on work of large and small diameters.

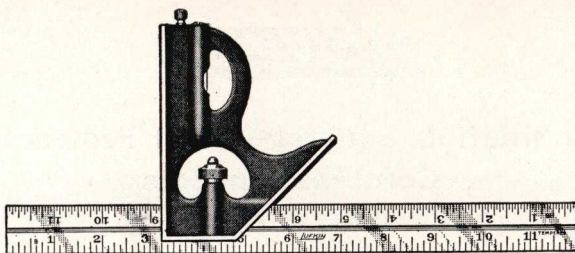
### Bevel Protractors

These are the graduated blade fitted with protractor head, single or double type, otherwise known as plain and reversible, i.e., with shoulder extending from one side only or both sides of blade. Our protractor heads are so constructed that the double can be readily converted into the single type, the one tool thus serving all purposes of both styles. The revolving turret is accurately marked with degrees from 0 to 90 right and left. Having two thumb screws, it can be securely set at any angle. All our protractor heads are equipped with level glass.

### Combination Sets

These are graduated blade together with square, center and protractor heads, a tool serving all the purposes of the Combination Square and Bevel Protractor. These Combination Sets have more applications in use than any other tool made for mechanics.





## Combination Squares

### Blade with Square Head Only

Level in Head

(4" excepted)

Tempered Blade

#### WITH CAST HEAD

<b>No. 25</b>	Graduation: No. 4. 8ths, 16ths, 32nds, 64ths inch.	
Size: 4-inch.....	Price, each	\$1.50
6-inch.....	Price, each	1.80
9-inch.....	Price, each	2.40
12-inch.....	Price, each	3.00
18-inch.....	Price, each	3.90
24-inch.....	Price, each	4.80

**No. 25M** Graduation: Metric Only.

**No. 25ME** Graduation: Metric & English.

Size: 10-cm.....	Price, each	\$1.50
15-cm.....	Price, each	1.80
20-cm.....	Price, each	2.40
30-cm.....	Price, each	3.00
50-cm.....	Price, each	3.90
60-cm.....	Price, each	4.80

#### WITH DROP FORGED AND HARDENED HEAD

<b>No. 35</b>	Graduation: No. 4. 8ths, 16ths, 32nds, 64ths inch.	
Size: 4-inch.....	Price, each	\$2.30
6-inch.....	Price, each	3.10
9-inch.....	Price, each	3.40
12-inch.....	Price, each	4.30
18-inch.....	Price, each	5.40
24-inch.....	Price, each	6.30

**No. 35M** Graduation: Metric Only.

**No. 35ME** Graduation: Metric & English.

Size: 10-cm.....	Price, each	\$2.30
15-cm.....	Price, each	3.10
20-cm.....	Price, each	3.40
30-cm.....	Price, each	4.30
50-cm.....	Price, each	5.40
60-cm.....	Price, each	6.30

Nos. 25M and 35M are marked: Three edges in millimeters;  
One edge in  $\frac{1}{2}$  millimeters.

Nos. 25ME and 35ME are marked: One side  $\frac{1}{2}$  millimeters and 32nds inch;  
Other side millimeters and 64ths inch.

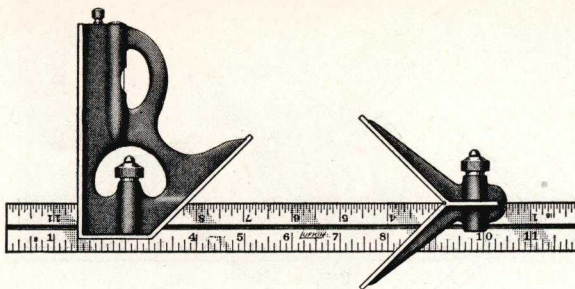
Packing: One in a box

Weight each: No. 25 Series... 4, 6, 10, 17, 22 and 26 ounces.

No. 35 Series... 4, 7, 11, 19, 24 and 28 ounces.

NOTES: Graduation No. 7 (16ths, 32nds, 64ths and 100ths) furnished when specified on  
Nos. 25 and 35. No extra charge.

General Description of Combination Squares—See page 175.



## Combination Squares

### Blade with Square and Center Heads

Level in Square Head  
(4" excepted)

Tempered Blade

#### WITH CAST HEADS

<b>No. 25C</b>	Graduation: No. 4.
	8ths, 16ths, 32nds, 64ths inch.
Size: 4-inch . . . . .	Price, each \$2.10
6-inch . . . . .	Price, each 2.40
9-inch . . . . .	Price, each 3.00
12-inch . . . . .	Price, each 3.60
18-inch . . . . .	Price, each 4.50
24-inch . . . . .	Price, each 5.40

**No. 25C-M** Graduation: Metric Only.

**No. 25C-ME** Graduation: Metric & English.

Size: 10-cm . . . . .	Price, each \$2.10
15-cm . . . . .	Price, each 2.40
20-cm . . . . .	Price, each 3.00
30-cm . . . . .	Price, each 3.60
50-cm . . . . .	Price, each 4.50
60-cm . . . . .	Price, each 5.40

#### WITH DROP FORGED AND HARDENED HEADS

<b>No. 35C</b>	Graduation: No. 4.
	8ths, 16ths, 32nds, 64ths inch.
Size: 4-inch . . . . .	Price, each \$3.80
6-inch . . . . .	Price, each 4.60
9-inch . . . . .	Price, each 5.30
12-inch . . . . .	Price, each 6.20
18-inch . . . . .	Price, each 7.30
24-inch . . . . .	Price, each 8.20

**No. 35C-M** Graduation: Metric Only.

**No. 35C-ME** Graduation: Metric & English.

Size: 10-cm . . . . .	Price, each \$3.80
15-cm . . . . .	Price, each 4.60
20-cm . . . . .	Price, each 5.30
30-cm . . . . .	Price, each 6.20
50-cm . . . . .	Price, each 7.30
60-cm . . . . .	Price, each 8.20

Nos. 25C-M and 35C-M are marked: Three edges in millimeters;  
One edge in  $\frac{1}{2}$  millimeters.

Nos. 25C-ME and 35C-ME are marked: One side  $\frac{1}{2}$  millimeters and 32nds inch;  
Other side millimeters and 64ths inch.

Packing: One in a box

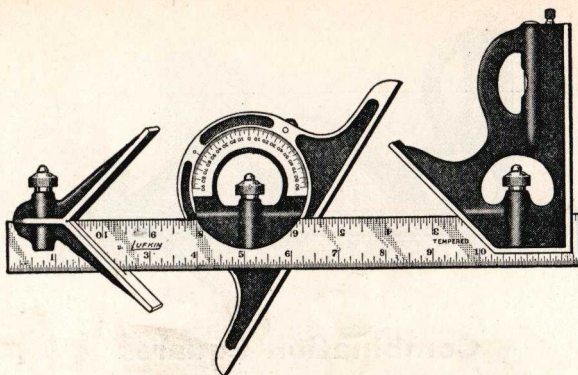
Weight each: No. 25C Series . . . 5, 8, 13, 21, 26 and 30 ounces.

No. 35C Series . . . 5, 9, 14, 23, 28 and 32 ounces.

NOTES: Graduation No. 7 (16ths, 32nds, 64ths and 100ths) furnished when specified on  
Nos. 25C and 35C. No extra charge.

General Description of Combination Squares—See page 175.





## Combination Sets

### Blade with Square, Center and Protractor Heads

(Protractor head not reversible)

Level in All Square and Protractor Heads

Tempered Blade

#### WITH CAST HEADS

<b>No. 525</b>	Graduation: No. 4.	
	8ths, 16ths, 32nds, 64ths inch.	
Size: 9-inch	Price, each	\$6.00
12-inch	Price, each	6.60
18-inch	Price, each	7.50
24-inch	Price, each	8.40

**No. 525M** Graduation: Metric Only.

**No. 525ME** Graduation: Metric & English.

Size: 20-cm	Price, each	\$6.00
30-cm	Price, each	6.60
50-cm	Price, each	7.50
60-cm	Price, each	8.40

#### WITH SQUARE AND CENTER HEADS DROP FORGED AND HARDENED

<b>No. 535</b>	Graduation: No. 4.	
	8ths, 16ths, 32nds, 64ths inch.	
Size: 9-inch	Price, each	\$8.30
12-inch	Price, each	9.20
18-inch	Price, each	10.30
24-inch	Price, each	11.20

**No. 535M** Graduation: Metric Only.

**No. 535ME** Graduation: Metric & English.

Size: 20-cm	Price, each	\$ 8.30
30-cm	Price, each	9.20
50-cm	Price, each	10.30
60-cm	Price, each	11.20

Nos. 525M and 535M are marked: Three edges in millimeters;  
One edge in  $\frac{1}{2}$  millimeters.

Nos. 525ME and 535ME are marked: One side  $\frac{1}{2}$  millimeters and 32nds inch;  
Other side millimeters and 64ths inch.

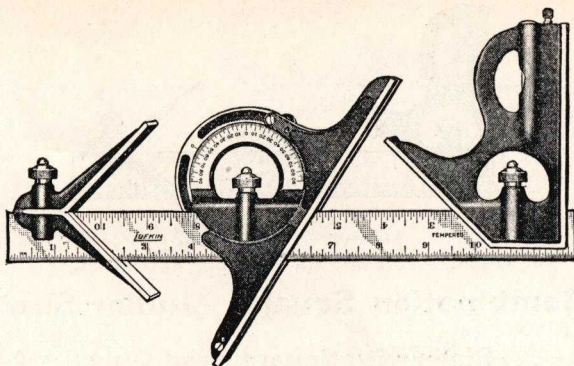
Packing: One in a box

Weight each: No. 525 Series . . . 24, 30, 35 and 39 ounces.

No. 535 Series . . . 26, 32, 37 and 41 ounces.

NOTES: Graduation No. 7 (16ths, 32nds, 64ths and 100ths) furnished when specified on  
Nos. 525 and 535. No extra charge.

General Description of Combination Sets—See page 175.



## Combination Sets

### Blade with Square, Center and Protractor Heads

(Protractor head reversible)

Level in All Square and Protractor Heads

Tempered Blade

#### WITH CAST HEADS

<b>No. 625</b>	Graduation: No. 4.
	8ths, 16ths, 32nds, 64ths inch.
Size: 9-inch.....	Price, each \$7.20
12-inch.....	Price, each 7.80
18-inch.....	Price, each 8.70
24-inch.....	Price, each 9.60

**No. 625M** Graduation: Metric Only.

**No. 625ME** Graduation: Metric & English.

Size: 20-cm.....	Price, each \$7.20
30-cm.....	Price, each 7.80
50-cm.....	Price, each 8.70
60-cm.....	Price, each 9.60

#### WITH SQUARE AND CENTER HEADS DROP FORGED AND HARDENED

<b>No. 635</b>	Graduation: No. 4.
	8ths, 16ths, 32nds, 64ths inch.
Size: 9-inch.....	Price, each \$ 9.50
12-inch.....	Price, each 10.40
18-inch.....	Price, each 11.50
24-inch.....	Price, each 12.40

**No. 635M** Graduation: Metric Only.

**No. 635ME** Graduation: Metric & English.

Size: 20-cm.....	Price, each \$ 9.50
30-cm.....	Price, each 10.40
50-cm.....	Price, each 11.50
60-cm.....	Price, each 12.40

Nos. 625M and 635M are marked: Three edges in millimeters;  
One edge in  $\frac{1}{2}$  millimeters.

Nos. 625ME and 635ME are marked: One side  $\frac{1}{2}$  millimeters and 32nds inch;  
Other side millimeters and 64ths inch.

Packing: One in a box

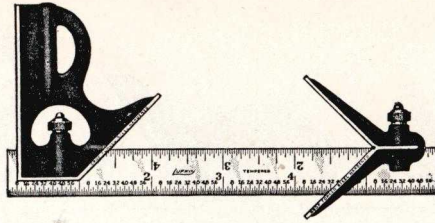
Weight each: No. 625 Series . . . 27, 34, 39 and 43 ounces.

No. 635 Series . . . 29, 36, 41 and 45 ounces.

NOTES: Graduation No. 7 (16ths, 32nds, 64ths and 100ths) furnished when specified on  
Nos. 625 and 635. No extra charge.

General Description of Combination Sets—See page 175.





## Combination Squares (Junior Size)

Blade with Square Head Only

also

Blade with Square and Center Heads

All Heads Drop Forged and Hardened

Readable Graduations (64ths numbered)

Tempered Blade

These Drop Forged Squares are of same general pattern as our No. 35 and 35C lines but with narrower blade ( $\frac{5}{8}$  inch) and with smaller square and center heads than the corresponding length in those lines. These appeal particularly to tool and die makers, pattern makers and others, because of their smaller size and lighter weight.

Readable Graduation, 64ths numbered every 8th division, is another distinctive feature of these "Junior" Squares.

These Combination Squares are made only with 6-inch blade.

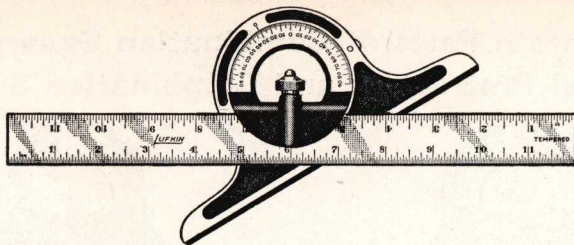
Number		Price Each
<b>135</b>	Blade with Square Head only. Length Blade: 6 inches. No. 4 Graduation—8ths, 16ths, 32nds, 64ths inch.....	\$3.50
<b>135C</b>	Blade with Square and Center Heads. Length Blade: 6 inches. No. 4 Graduation—8ths, 16ths, 32nds, 64ths inch.....	4.40

Packing: One in a box

Weight each: No. 135—4 ozs.,

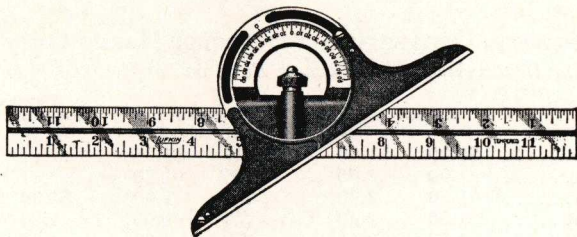
No. 135C—6 ozs.

NOTE: General Description of Combination Squares—See page 175.



**No. 5 Not Reversible.**

(Head has shoulder on one side of blade)



**No. 6 Reversible.**

(Head has shoulder on both sides of blade)

## Bevel Protractors

### Blade with Protractor Head Only

Level in All Heads

Tempered Blade

#### WITH PROTRACTOR HEAD NOT REVERSIBLE

<b>No. 5</b>	Graduation: No. 4.
	8ths, 16ths, 32nds, 64ths inch.
Size:	9-inch.....Price, each \$4.50
	12-inch.....Price, each 4.90
	18-inch.....Price, each 6.00
	24-inch.....Price, each 6.90

**No. 5M** Graduation: Metric Only.

**No. 5ME** Graduation: Metric & English.

Size:	20-cm.....Price, each \$4.50
	30-cm.....Price, each 4.90
	50-cm.....Price, each 6.00
	60-cm.....Price, each 6.90

#### WITH REVERSIBLE PROTRACTOR HEAD

<b>No. 6</b>	Graduation: No. 4.
	8ths, 16ths, 32nds, 64ths inch.
Size:	9-inch.....Price, each \$5.70
	12-inch.....Price, each 6.10
	18-inch.....Price, each 7.20
	24-inch.....Price, each 8.10

**No. 6M** Graduation: Metric Only.

**No. 6ME** Graduation: Metric & English.

Size:	20-cm.....Price, each \$5.70
	30-cm.....Price, each 6.10
	50-cm.....Price, each 7.20
	60-cm.....Price, each 8.10

Nos. 5M and 6M are marked: Three edges in millimeters;  
One edge in  $\frac{1}{2}$  millimeters.

Nos. 5ME and 6ME are marked: One side  $\frac{1}{2}$  millimeters and 32nds inch;  
Other side millimeters and 64ths inch.

Packing: One in a box

Weight each: No. 5 Series....15, 18, 23 and 27 ounces.

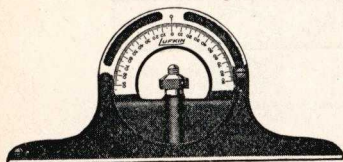
No. 6 Series....18, 21, 26 and 30 ounces.

NOTES: Graduation No. 7 (16ths, 32nds, 64ths and 100ths) furnished when specified on  
Nos. 5 and 6. No extra charge.

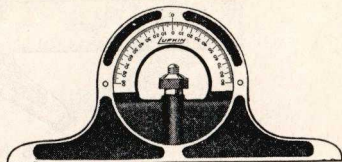
General Description of Bevel Protractors—See page 175.



## Separate Parts of Combination Squares, Bevel Protractors and Combination Sets



No. 06

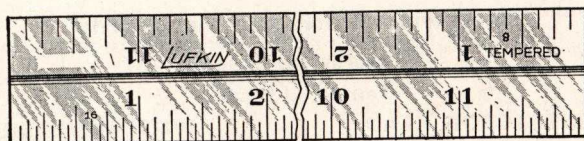


No. 05

### Square, Center and Protractor Heads Only

*In Ordering Heads, Always State Length Blade on Which Head Is to be Used*

For Blade Length		Square Head		Center Head		Protractor Head	
		Cast	Hardened	Cast	Hardened	Reversible No. 06	Not Reversible No. 05
4-inch.	Each.....	\$0.90	\$1.90	\$0.75	\$1.50	.....	.....
6-inch.	Each.....	.90	2.00	.75	1.50	.....	.....
9-inch.	Each.....	1.20	2.20	.75	1.90	\$4.20	\$3.00
12-inch.	Each.....	1.50	2.40	.75	1.90	4.20	3.00
18-inch.	Each.....	1.50	2.40	.75	1.90	4.20	3.00
24-inch.	Each.....	1.50	2.40	.75	1.90	4.20	3.00
Scribers Only.....						Each	\$0.15
Bolt (with nut and spring).....						Each	.35



### Combination Square Blades Only—Standard Graduations

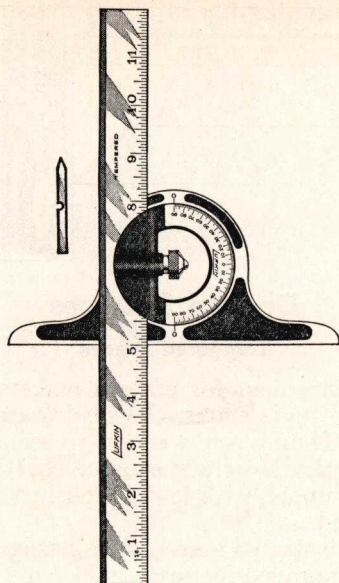
No. 2504	Blade.	Graduation No. 4. (8ths, 16ths, 32nds, 64ths inch.)					
No. 2507	Blade.	Graduation No. 7. (16ths, 32nds, 64ths, 100ths inch.)					
	Length.....	4-inch	6-inch	9-inch	12-inch	18-inch	24-inch
	Price, each....	\$0.80	\$1.20	\$1.50	\$1.90	\$3.00	\$3.90
No. 2504R	Blade.	Grad. No. 4 (8ths, 16ths, 32nds, 64ths) Readable 32nds and 64ths.					
	Length: Made in 12-inch only.....						Price, each \$2.30
No. 2516	Blade.	Grad. No. 16 (32nds, 64ths, 50ths, 100ths).					
	Length: Made in 12-inch only.....						Price, each \$1.90
	Blade for Squares No. 135 and 135C.	Graduation No. 4. Readable Numbering.					
	Length: Made in 6-inch only.....						Price, each \$1.70

### Combination Square Blades Only—Shrink Graduation

In all graduations on these Blades allowance is made for shrinkage of castings; the amount of such allowance is indicated below. These Blades are used by foundrymen, patternmakers and others. These Shrink Blades fit heads of our standard 12-inch size Combination Squares. They are tempered and machine divided. Shrink blades are made in 12-inch length only.

Number		Shrink per Foot	Graduation	Price, Each
2583E	Shrink Blade	$\frac{1}{8}$ inch	8ths, 16ths, 32nds, 64ths inch	\$2.70
2583F	Shrink Blade	$\frac{3}{16}$ inch	8ths, 16ths, 32nds, 64ths inch	2.70

NOTE: Prices on this page apply also to Parts of corresponding size M and ME Combination Squares, etc.



## Cylinder Protractor

### V-Edge Blade with Protractor Head Only

Level in Head

Tempered Blade

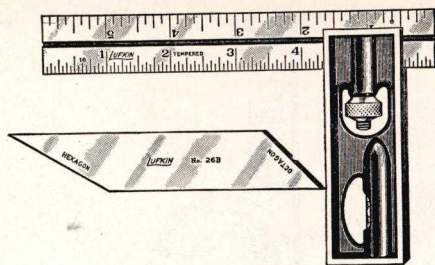
This tool is especially designed for motor cylinder reconditioning work. It is particularly adapted for determining the alignment of reboring machines and for checking the perpendicular alignment or taper of cylinder walls.

The Protractor Head has revolving turret, accurately graduated in degrees from 0 to 90, both right and left. Two thumb screws serve to securely lock it at any angle. This Head has level glass. Its polished and its enameled parts are all well finished.

The Blade is of tempered steel, is twelve inches long and has both sides of one edge beveled, "V" shape. On the opposite edge the Blade is graduated, one side to 32nds, other side to 16ths inch.

Number	Price, Each
<b>15</b> Cylinder Protractor. With 12-inch "V" Edge Blade. Graduated one side 32nds, other side 16ths inch.....	\$5.65
Packing: One in a box. Weight each: 18 ounces	
Blade only for No. <b>15</b> . (Regular 12 inch blade).....	\$2.65





## Double Squares

### Tempered Blades

These are very convenient for pattern makers, machinists and tool makers. Unlike simple try squares, the blades are adjustable in length by moving the head. Thumb screw serves to securely set blades at any point. Both faces of the head are square. In the 6-inch and 15-cm. Squares the head is equipped with level. Polished and enameled parts of head are all well finished.

The bevel blade, illustrated above, gives hexagon and octagon angles, and is so marked, an improved feature.

The drill grinding blade converts the tool into a most practical Drill Grinding Gage. For markings and uses of this blade, see next page.

**With No. 4 Graduation—8ths, 16ths, 32nds, 64ths Inch**

#### With Graduated Blade Only No. 26A

Length	Price, Each
4-inch.....	\$1.85
6-inch.....	2.85

#### With Graduated and Bevel Blades No. 26B

Length	Price, Each
4-inch.....	\$2.35
6-inch.....	3.45

#### With Graduated, Bevel and Drill Grinding Blades No. 26C

Length	Price, Each
6-inch.....	\$4.70

#### Graduated Metric Only No. 26M-B

No. 26M-A

No. 26M-C

#### Graduated Metric and English

#### No. 26ME-A With Graduated Blade Only

Length	Price, Each
10 cm.....	\$1.85
15 cm.....	2.85

#### No. 26ME-B With Graduated and Bevel Blades

Length	Price, Each
10 cm.....	\$2.35
15 cm.....	3.45

#### No. 26ME-C With Graduated, Bevel and Drill Grinding Blades

Length	Price, Each
15 cm.....	\$4.70

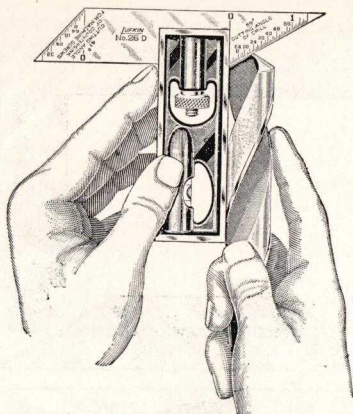
Nos. 26M—A, B and C are marked: Three edges in millimeters;  
One edge in  $\frac{1}{2}$  millimeters.

Nos. 26ME—A, B and C are marked: One side  $\frac{1}{2}$  millimeters and 32nds inch;  
Other side millimeters and 64ths inch.

Packing: One in a box.

Weight each, with 2 blades: 4-inch.... 4 ozs.; 6-inch.... 8 ozs.

NOTE: Separate parts of Double Squares—See foot of page 185.



## Drill Grinding Gage

### Tempered Blade

This is an ideal tool for use in drill grinding work, yet of moderate price. With it the cutting edges of drills and countersinks are most readily and accurately tested for proper angle, and their points for proper centering.

The head, or stock, is that of the Double Square (page 184), standard size and equipped with level. Polished and enameled parts of this head are all well finished. The drill grinding blade fits the head of six inch Double Square.

The bevel of blade at one end is 59 degrees, representing the cutting angle of drills; and at the other end 41 degrees, the cutting angle of countersinks for machine screws. Blade is slotted down the center, slides readily in the head, and may be securely set by thumb screw. It is  $4\frac{9}{16}$  inches long overall.

The two bevel ends of blade are graduated to 64ths of an inch and have Readable Numbering, as on steel rules. A valuable and distinctive feature of this tool is that the graduations are placed to measure at right angles to the face of the square head, which, of course, is perpendicular with the axis of the drill. Thus the center of drill is directly obtained by reading the graduation. This affords the simplest and most accurate method of centering drill points.

The face of the square head, to which the drill is held, is  $\frac{9}{16}$  inch wide, another aid to accurate and quick drill testing.

Number		Price, Each
26D	Drill Grinding Gage Complete. Weight each 6 ozs.....	\$2.90
26E	Drill Grinding Blade Only for No. 26D.....	1.25

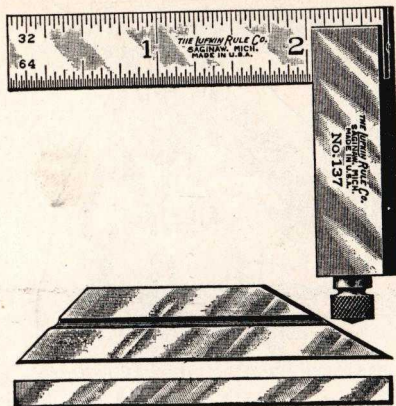
Packing: One in a box

NOTE: Number 26D with addition of Graduated Measuring Blade and Plain Bevel Blade is No. 26C, listed page 184.

### Separate Parts of Double Squares and Drill Grinding Gage (Pages 184 and 185)

Graduated Measuring Blade		Plain Bevel Blade	
4 inch (10 cm).....Each	\$0.80	For 4 inch Square.....Each	\$0.50
6 inch (15 cm).....Each	1.20	For 6 inch Square.....Each	.60
Drill Grinding Blade		Head or Stock Only	
For Head of 6 inch Square..Each	\$1.25	For 4 inch Square.....Each	\$1.05
		For 6 inch Square.....Each	1.65





## Double Steel Squares

### With Hardened and Ground Head and Blades

Designed especially for tool and die makers. Both faces of head (or stock) are square. All blades slide in head, permitting use in places where a square with fixed blade could not be used. Knurled thumb nut with tension spring serves to securely lock any of the blades.

*This Square is furnished in various combinations with the following blades:*

**Standard Blade**..... Graduated one side only, upper edge 32nds, lower edge 64ths inch.

2½ inches long. Approximately ½ inch wide.

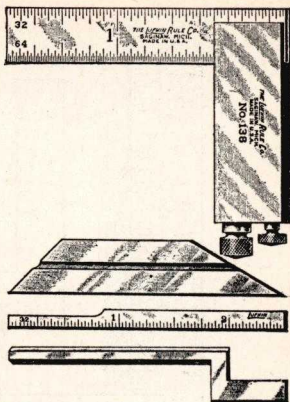
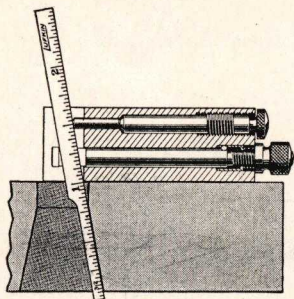
**Bevel Blade**..... To determine 30 and 45 degree angles. 2½ inches long. Approximately ½ inch wide.

**Narrow Blade**..... ⅛ inch wide. 2½ inches long. Ungraduated. Very handy for squaring small holes.

Number	Price Each
<b>137A</b> Square with Standard Blade.....	\$3.25
<b>137B</b> Square with Standard and Bevel Blades.....	3.55
<b>137N</b> Square with Standard and Narrow Blades.....	3.55
<b>137C</b> Square Complete, with Standard, Bevel and Narrow Blades.....	3.85

Packing: One in a box. Weight each: About 2 ounces

NOTE: No. **137C** furnished unless otherwise specified.



## Die Makers Squares

### With Hardened and Ground Head and Blades

A tool and die makers Square designed so that the blades not only slide in the head (or stock) but can be adjusted at an angle with the stock. This is particularly valuable in determining the clearance in dies (see sectional view).

Both faces of the stock are square. Stock has two knurled thumb screws, the larger one is for locking blade in desired position, the smaller is for setting any of the blades at an angle. To set blade at an angle, first loosen the thumb screw which clamps the blade, then turn the smaller thumb screw into the stock. The sectional view shows how this action adjusts the blade to the desired angle, which is then held by tightening the clamping screw.

*This Square is furnished in various combinations with the following blades:*

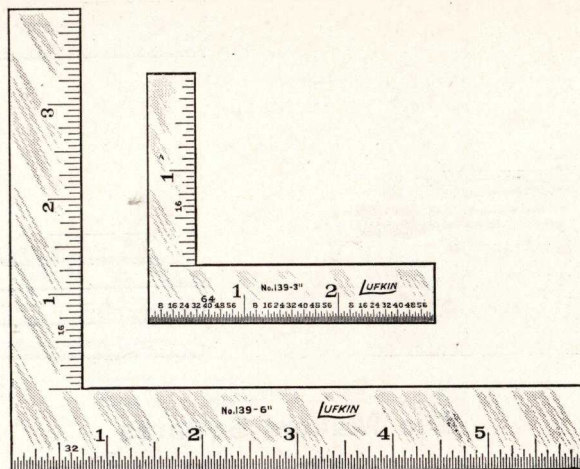
- Standard Blade**..... Graduated one side only, upper edge 32nds, lower edge 64ths inch.  
 $2\frac{1}{2}$  inches long. Approximately  $\frac{1}{2}$  inch wide.
- Bevel Blade**..... To determine 30 and 45 degree angles.  
 $2\frac{1}{2}$  inches long. Approximately  $\frac{1}{2}$  inch wide.
- Narrow Blade**..... Approximately  $\frac{5}{32}$  inch wide.  $2\frac{1}{2}$  inches long.  
 Cut away on one end  $\frac{3}{4}$  inch back, giving a blade  $\frac{3}{32}$  inch by  $\frac{1}{16}$  inch in size for use in very small places.  
 Blade graduated one side to 32nds inch.
- Offset Blade**..... Used in places where it is difficult to sight with the straight blade. The offset end of blade is approximately  $\frac{1}{8}$  inch wide and extends from the stock about  $1\frac{1}{2}$  inches. Both sides of each edge are beveled to give a line contact.

Number		Price Each
<b>138A</b>	Square with Standard Blade.....	\$4.00
<b>138B</b>	Square with Standard and Bevel Blades.....	4.30
<b>138N</b>	Square with Standard and Narrow Blades.....	4.50
<b>138C</b>	Square with Standard, Bevel and Narrow Blades.....	4.80
<b>138CX</b>	Square Complete, with Standard, Bevel, Narrow and Offset Blades...	5.80

Packing: One in a box. Weight each: About 3 ounces

NOTE: No. **138CX** furnished unless otherwise specified.





## Thin Steel Squares

In laying out work these Squares are very handy for draftsmen, pattern and toolmakers, machinists and others.

They are graduated on one inside edge and one outside edge of both sides. The 2"x1" and 3"x2" Squares are graduated 16ths and 64ths inch on one side and 32nds and 64ths on the other side, and both these sizes have "Readable" Graduations (64ths numbered every 8th division). The 4"x3" and 6"x4" Squares are graduated 16ths and 32nds inch both sides.

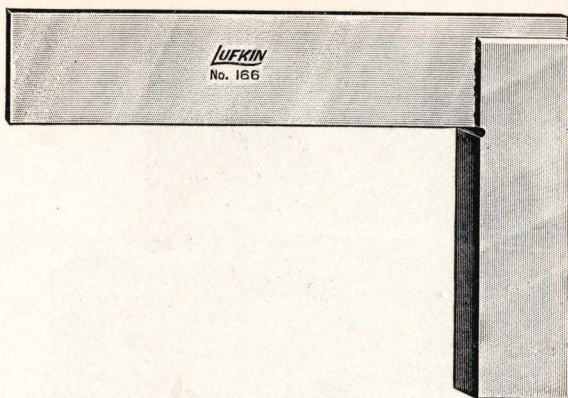
Number	Size	Length of Blades	Thickness of Blades	Price, Each
<b>139 — 2 inch</b>		2" x 1"	$\frac{1}{20}$ inch	<b>\$2.10</b>
<b>139 — 3 inch</b>		3" x 2"	$\frac{1}{20}$ inch	<b>2.70</b>
<b>139 — 4 inch</b>		4" x 3"	$\frac{1}{16}$ inch	<b>3.60</b>
<b>139 — 6 inch</b>		6" x 4"	$\frac{1}{16}$ inch	<b>5.10</b>

Packing: Three in a box.

Weight each: 2 and 3 inch,  $\frac{1}{2}$  oz.

4 inch,  $1\frac{1}{2}$  ozs.

6 inch, 3 ozs.



## Hardened Solid Steel Squares

### Not Graduated

These are used as master squares and in checking close work. They have solid, i.e., one-piece beam or base. Both the beam and the blade are lapped. At the inner corner the beam is grooved to afford clearance for burr or dirt. The length of blade, as given below, is from the inner edge of the beam.

Wood Cases or Racks for protecting these Squares are also listed below. They are supplied only when specified.

No.	Size (Length Blade)		Length Beam	Price, Each
166	1½ inch	Solid Steel Square.....	1 9/16 inch.....	\$3.60
166	3 inch	Solid Steel Square.....	2 9/16 inch.....	4.50
166	4½ inch	Solid Steel Square.....	3 1/2 inch.....	6.90
166	6 inch	Solid Steel Square.....	4 3/8 inch.....	9.00

Packing: One in a box.

Weight, each: 1½ inch..... 1½ ozs.; 3 inch..... 4½ ozs.  
4½ inch..... 10 ozs.; 6 inch..... 1 lb.

### Wood Cases or Racks for Above Squares

For 1½ inch Square.....\$2.00 each.  
For 3 inch Square..... 2.25 each.  
For 4½ inch Square..... 2.50 each.  
For 6 inch Square..... 3.00 each.





## Tool Chest

### Quarter Sawed Oak

**Length:**  $19\frac{3}{4}$  inches.

**Height:**  $12\frac{1}{2}$  inches.

**Width:**  $9\frac{1}{4}$  inches.

A sturdy, fine appearing, portable Tool Chest for toolmakers and machinists. It is roomy and has top compartment and seven drawers.

The Chest is of selected, quarter sawed oak, handsomely finished; the same is true of the drawer fronts. Edges of Chest are slightly rounded, corners metal covered. Has heavy metal fittings, nicely nickel plated.

The top compartment, also its lid, and all drawer bottoms are covered with green felt. Drawers are lock cornered and glued, have heavy metal bottoms, and run on hardwood slides. Lid is securely hinged. It has mirror and spring clip, handy for holding catalog, circulars, reference tables, etc.

Front lid is end-hinged and, when open, slides under bottom drawer. It locks automatically when Chest is closed.

Heavy chest lock securely locks all compartments. Two keys are supplied. This lock has snap latch or loop and the Chest has four other snap latches, one at each end and two on front. Top lid has extra strong, leather covered carrying handle.

#### Inside Dimensions of Tool Chest

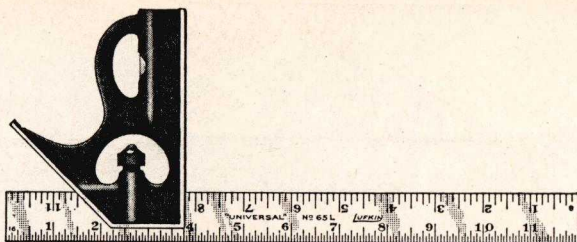
Top compartment with recessed lid	$18\frac{13}{16} \times 8\frac{5}{16} \times 3\frac{1}{4}$ inches.						
Length short drawers	$8\frac{7}{16}$ inches.						
Length long drawers	$18\frac{1}{16}$ inches.						
Depth drawers	$7\frac{3}{16}$ inches.						

Height of drawers, in inches	1st	2nd	3rd	4th	5th	6th	7th
	$1\frac{1}{16}$	$2\frac{1}{16}$	$1\frac{1}{16}$	$1\frac{1}{16}$	$1\frac{3}{16}$	$1\frac{1}{16}$	$2\frac{1}{16}$

**No. 381 Tool Chest.** Price, Each \$20.00

Each Chest securely packed for shipment.  
Shipping weight, each: 34 lbs.





## “Universal” Try and Miter Squares For Woodworkers

**With Level.**

**Without Level.**

“Universal” Squares consist of a graduated steel blade and metal square head. They are suitable for the uses of carpenters and other woodworkers. They combine in one tool the try and miter squares with blade adjustable in length, the level and plumb, marking gage, height and depth gage, and separate rule. While popular priced they are durable and well designed.

The blade (or rule) is clearly marked on both edges of both sides. The enameled head has square and miter faces and it slides in the groove of the blade, and, by means of a convenient thumb nut, can be securely clamped at any point along the blade. Thus the length of the blade extension outward from either the square or the miter face of the head is adjustable. The head is removable so blade can be used separately.

“Universal” Squares are furnished either with or without level glass.

**Always Specify Size as Well as Stock Number.**

### Marked English Measure Only

Both Sides, one edge 8ths, other edge 16ths inch

Number	Size		Price, Each
65L	9 inch.	With Level.....	\$1.35
65L	12 inch.	With Level.....	1.50
65	9 inch.	Without Level.....	1.10
65	12 inch.	Without Level.....	1.25

### Marked Metric and English

One Side millimeters and 16ths of inches;

Other Side millimeters and 8ths of inches

Number	Size		Price, Each
65L-ME	20 cm.	With Level.....	\$1.35
65L-ME	30 cm.	With Level.....	1.50
65ME	20 cm.	Without Level.....	1.10
65ME	30 cm.	Without Level.....	1.25

Packing: One in a box

Weight each: 9 inch (20 cm.), 12 ozs.; 12 inch (30 cm.), 18 ozs.





## Center Gages

Center Gages are used in grinding and setting screw cutting tools. These are made of steel and carry the graduations that are most commonly required in determining the number of threads per inch or per centimeter.

A valuable feature of the Gages listed below (excepting the metric) is the table of double depth figures they carry. This is used in determining tap drill size for sharp 60 degree and 55 degree "V" threads. Allowance must be made for the extent to which thread is flattened, it being impractical to tap a perfectly sharp thread.

### Marked 14ths, 20ths, 24ths and 32nds Inch

Number		Price Each
36	Center Gage. Spring tempered. Angles of 60 degrees.....	\$0.50
036	Center Gage. Not tempered. Angles of 60 degrees.....	.40
37	Whitworth Standard Center Gage. Spring tempered. Angles of 55 degrees.....	.50
037	Whitworth Standard Center Gage. Not tempered. Angles of 55 degrees.....	.40

### Marked: Two edges in millimeters, Two edges in 1/2 millimeters

Number		Price Each
36M	Metric Center Gage. Spring tempered. Angles of 60 degrees.....	\$0.50
036M	Metric Center Gage. Not tempered. Angles of 60 degrees.....	.40

Packing: Six in a box. Weight per doz., 4 ozs.

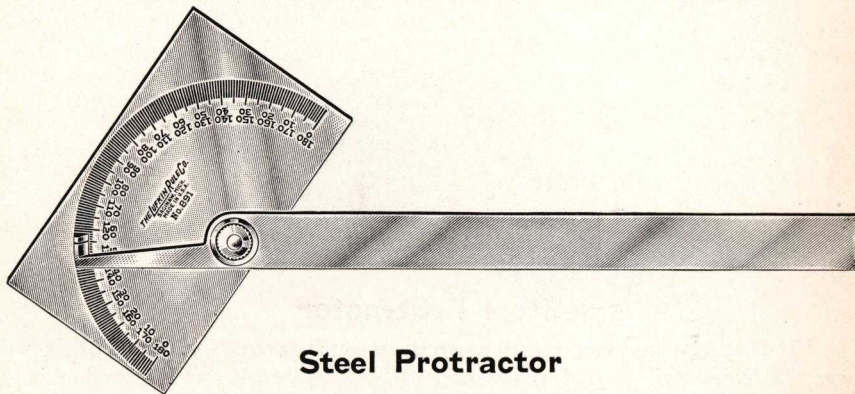


### Steel Protractor

A handy Protractor for machinists, draftsmen, and other mechanics; used in setting bevels, transferring angles, and many other classes of work.

The head is semi-circular and its back is flat. It is graduated at the edge in degrees from 0 to 180, and has two rows of figures reading in opposite directions. The indicating arm of the blade has a line graduation for accurately setting and reading the Protractor. The blade is six inches long, has spring giving constant tension and can be securely set by means of the knurled thumb nut.

Number	Price, Each
<b>890</b> Steel Protractor.....	<b>\$2.50</b>



### Steel Protractor

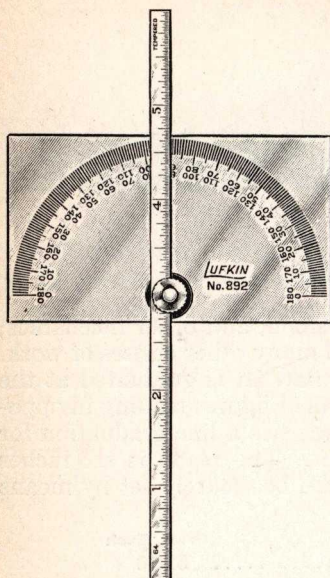
A handy Protractor differing from No. 890 only in the shape of the head. Used by machinists, draftsmen and others in setting bevels, transferring angles, etc.

Head being rectangular gives four working faces. Back of head is flat. Head is graduated in degrees from 0 to 180, and has two rows of figures reading in opposite directions. The indicating arm of the blade has a line graduation for accurately setting and reading the Protractor. The blade is six inches long, has spring giving constant tension and can be securely set by means of the knurled thumb nut.

Number	Price, Each
<b>891</b> Steel Protractor.....	<b>\$3.00</b>

Packing Nos. **890** and **891**: One in a box. Weight each: 3 ounces





## Protractor and Depth Gage

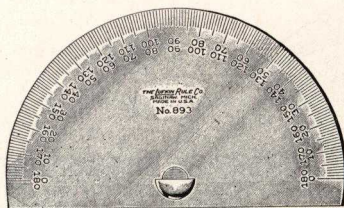
This handy tool for machinists, draftsmen and others serves for setting bevels, transferring angles and gaging depths.

The head being rectangular has four working faces. Back of head is flat. Head is graduated in degrees from 0 to 180 and has two rows of figures reading in opposite directions.

The blade of this Protractor is our regular, narrow pattern, machine divided scale No. 2310, six-inch, graduated one side 64ths, other side 32nds inch. It serves not only as blade and indicating arm for the Protractor, but also as graduated blade of Depth Gage, as it slides through the head of the set nut. It has spring affording constant tension and the knurled thumb nut securely sets it at any angle and at any length extended.

<b>Number</b>	<b>Price, Each</b>
<b>892</b>	<b>Protractor and Depth Gage . . . . . \$3.00</b>

Packing: One in a box  
Weight each: 3 ounces

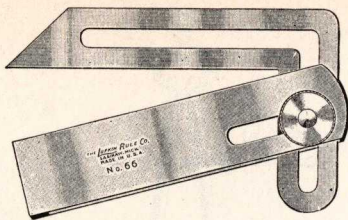


## Steel Protractor

Used for setting at any desired angle Bevels such as our Nos. 66 and 67, shown page 193. Thus used, the tool is converted into a Bevel Protractor. It is graduated at the edge in degrees from 0 to 180, and has two rows of figures reading in opposite directions. The back of the tool is flat.

<b>Number</b>	<b>Price, Each</b>
<b>893</b>	<b>Steel Protractor . . . . . \$1.75</b>

Packing: One in a box  
Weight each: 2 ounces



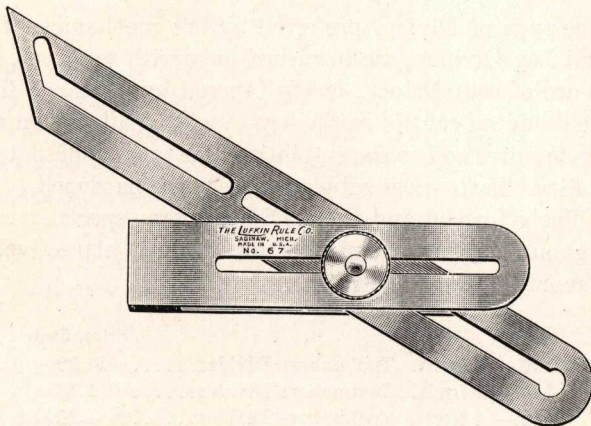
## Universal Bevel

This Universal Bevel is a very popular tool, necessary in many classes of work. The blade is so shaped that it can be set even at the slightest angle.

Arm of the blade having beveled end is 3 inches long. Stock is 3 inches long, and, while slotted, is solid on one edge for  $1\frac{3}{4}$  inches, forming a rest under the blade against which the work may be placed and accurately fitted. This tool has a spring giving constant tension and knurled thumb nut with which the blade can be locked at any angle. Head of the clamping bolt sets into a recess, allowing the stock to lie flat on the work.

Bevel No. 66 can be used with Protractor No. 893 as a Bevel Protractor.

Number	Price, Each
66 Universal Bevel.....	\$2.25



## Universal Bevel

Blade of this Bevel has both straight and offset slots. Therefore it will take adjustments and angles that cannot be obtained with many common Bevels.

Stock is  $3\frac{1}{2}$  inches long, blade 6 inches. This tool has a spring affording constant tension and knurled thumb nut with which the blade can be locked in any position. Head of the clamping bolt sets into a recess, allowing the stock to lie flat on the work.

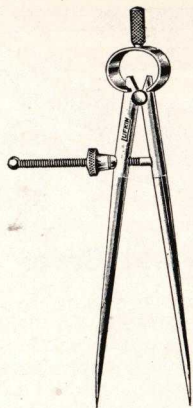
Bevel No. 67 can be used with Protractor No. 893 as a Bevel Protractor.

Number	Price, Each
67 Universal Bevel.....	\$2.25

Packing: One in a box  
Weight each: No. 66—2 ozs.; No. 67—4 ozs.

NOTE: Steel Protractor No. 893—See page 192.





## Toolmakers Spring Dividers

### Round Leg Pattern

This is the type of Divider preferred by fine mechanics. These Toolmakers Round Leg Dividers are furnished only with solid nut.

The legs are of round stock, nicely tapered by swaging. The adjustment screw is mounted central in the legs, avoiding all torsion on legs and spring. These features add to the stability of the tool. Stiff, flat bow spring insures reliability. Parts most subject to wear are hardened.

Legs are finely formed and these Dividers are especially well proportioned throughout and nicely finished, so are most attractive. All have thumb attachment.

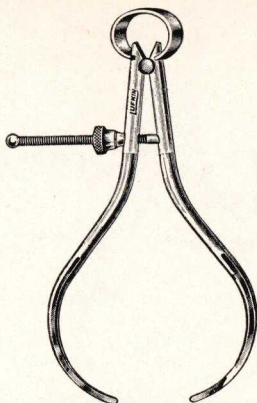
No.	Size		Price, Each
140	2 inch.	Toolmakers Divider.....	\$1.20
140	3 inch.	Toolmakers Divider.....	1.50
140	4 inch.	Toolmakers Divider.....	1.80
140	5 inch.	Toolmakers Divider.....	1.80
140	6 inch.	Toolmakers Divider.....	2.10

Packing: Two in a box

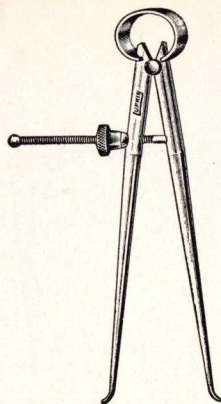
Weight per doz.: 2-inch  $\frac{3}{8}$  lb.; 3-inch  $\frac{5}{8}$  lb.;  
4-inch 1 lb.; 5-inch  $1\frac{1}{2}$  lbs.; 6-inch  $2\frac{1}{4}$  lbs.

### Duplicate Parts of Toolmakers Spring Calipers and Dividers

Part	Price, Each	Part	Price, Each
Screw and Ball.....	\$0.20	Spring.....	\$0.30
Thumb Attachment (No. 140)...	.20	Jam Washer.....	.15
Nut.....	.15	Fulcrum Stud.....	.15
Leg.....	.40		



Outside Caliper  
No. 141



Inside Caliper  
No. 142

## Toolmakers Outside and Inside Spring Calipers Round Leg Pattern

This is the type of Caliper preferred by fine mechanics. These Toolmakers Round Leg Calipers are furnished only with solid nut.

The legs are of round stock, nicely tapered by swaging. The adjustment screw is mounted central in the legs, avoiding all torsion on legs and spring. These features add to the stability of the tool. Stiff, flat bow spring insures reliability. Parts most subject to wear are hardened.

Legs are finely formed and these Calipers are especially well proportioned throughout and nicely finished, making them most attractive.

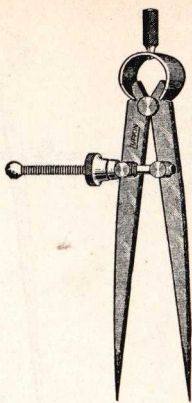
No.	Size		Price, Each
141	2 inch.	Toolmakers Outside Caliper.....	\$1.20
141	3 inch.	Toolmakers Outside Caliper.....	1.50
141	4 inch.	Toolmakers Outside Caliper.....	1.80
141	5 inch.	Toolmakers Outside Caliper.....	1.80
141	6 inch.	Toolmakers Outside Caliper.....	2.10

No.	Size		Price, Each
142	2 inch.	Toolmakers Inside Caliper.....	\$1.20
142	3 inch.	Toolmakers Inside Caliper.....	1.50
142	4 inch.	Toolmakers Inside Caliper.....	1.80
142	5 inch.	Toolmakers Inside Caliper.....	1.80
142	6 inch.	Toolmakers Inside Caliper.....	2.10

Packing: Two in a box

Approximate weight per doz.: 2-inch  $\frac{1}{2}$  lb.; 3-inch  $\frac{3}{4}$  lb.;  
4-inch  $1\frac{1}{4}$  lbs.; 5-inch  $1\frac{5}{8}$  lbs.; 6-inch  $2\frac{1}{2}$  lbs.



**"Quick Nut"****"Banner" Spring Dividers****With Solid Nut****With "Quick Nut"**

Spring Dividers are the kind most widely used. In our Spring Dividers each part is made of steel best suited to the purpose. The points are properly hardened. The stiff, flat bow spring insures reliability. These Dividers are correct in shape and size and have a fine, uniform finish. All have thumb attachment.

The "Quick Nut" is designed for making quick adjustments. On release of pressure this nut slides freely over the threads of the screw, but on slightest leg pressure grips the screw firmly. It is the best device for the purpose and a marked improvement over the common spring nut, as measurement obtained is positively held. It does not have a spring to become worn as it passes over the threads and does not wear or strip the screw. Our "Quick Nut" Dividers, having this rapid and positive feature, are proving very popular.

**"BANNER" SPRING  
DIVIDERS****With Solid Nut**

No.	Size	Price, Each
40 —	2½ inch	\$0.80
40 —	3 inch	.85
40 —	4 inch	.90
40 —	5 inch	1.00
40 —	6 inch	1.05
40 —	8 inch	1.35

**"BANNER" SPRING  
DIVIDERS****With "Quick Nut"**

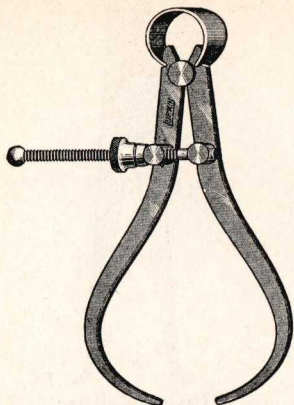
No.	Size	Price, Each
50 —	2½ inch	\$1.00
50 —	3 inch	1.05
50 —	4 inch	1.10
50 —	5 inch	1.15
50 —	6 inch	1.20
50 —	8 inch	1.50

Packing: Three in a box

Weight per doz.: 2½-inch ½ lb.; 3-inch ¾ lb.;  
4-inch 1¼ lbs.; 5-inch 1½ lbs.; 6-inch 2¼ lbs.; 8-inch 4 lbs.

**Duplicate Parts of "Banner" Spring Calipers and Dividers**

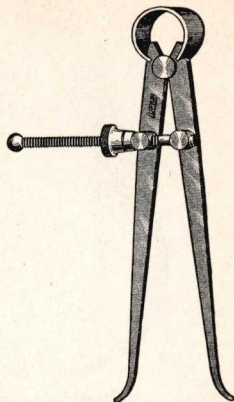
Part	Price, Each	Part	Price, Each
Screw and Ball	\$0.20	Leg	\$0.30
Thumb Attachment (No. 40 and 50)	.20	Spring	.30
Solid Nut	.15	Jam Washer	.15
"Quick Nut"	.30	Fulcrum Stud	.15



Outside Caliper  
Nos. 41 and 51



"Quick Nut"



Inside Caliper  
Nos. 42 and 52

## "Banner" Outside and Inside Spring Calipers With Solid Nut and with "Quick Nut"

Spring Calipers are the type most widely used. In our Spring Calipers all parts are made of steel best suited to the purpose, and those most subject to wear are properly hardened. Stiff, flat bow spring insures reliability. These Calipers are correct in shape and size and have a fine, uniform finish.

The inside type can be used as a Transfer Caliper, as the legs can be sprung in and withdrawn and when released will spring back to the size calipered.

The "Quick Nut" is designed for making quick adjustments. On release of pressure this nut slides freely over the threads of the screw, but on slightest leg pressure grips the screw firmly. It is the best device for the purpose and a marked improvement over the common spring nut, as measurement obtained is positively held. It does not have a spring to become worn as it passes over the threads and does not wear or strip the screw. Our "Quick Nut" Calipers, having this rapid and positive feature, are proving very popular.

### "BANNER" OUTSIDE CALIPERS

With Solid Nut			With "Quick Nut"		
No.	Size	Each	No.	Size	Each
41—2½	inch	\$0.80	51—2½	inch	\$1.00
41—3	inch	.85	51—3	inch	1.05
41—4	inch	.90	51—4	inch	1.10
41—5	inch	1.00	51—5	inch	1.15
41—6	inch	1.05	51—6	inch	1.20
41—8	inch	1.20	51—8	inch	1.40

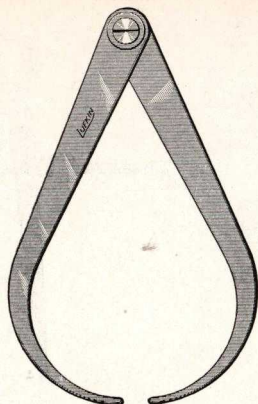
### "BANNER" INSIDE CALIPERS

With Solid Nut			With "Quick Nut"		
No.	Size	Each	No.	Size	Each
42—2½	inch	\$0.80	52—2½	inch	\$1.00
42—3	inch	.85	52—3	inch	1.05
42—4	inch	.90	52—4	inch	1.10
42—5	inch	1.00	52—5	inch	1.15
42—6	inch	1.05	52—6	inch	1.20
42—8	inch	1.20	52—8	inch	1.40

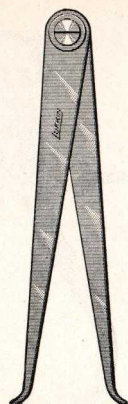
Packing: Three in a box

Approximate weight per doz.: 2½-inch ¾ lb.; 3-inch ¾ lb.;  
4-inch 1½ lbs.; 5-inch 1¾ lbs.; 6-inch 2½ lbs.; 8-inch 4¾ lbs.





**Outside Caliper  
No. 11**



**Inside Caliper  
No. 12**

### Firm Joint Outside and Inside Calipers

Joint with adjustable tension is the distinctive feature of these Firm Joint Calipers. Lock screw construction enables one to set and hold the legs to any desired tension or friction, always operating smoothly.

These Calipers are of sturdy construction throughout, nicely proportioned and well finished.

All sizes below are length of legs. Actual capacity is about one-quarter greater than this length.

#### FIRM JOINT OUTSIDE CALIPERS

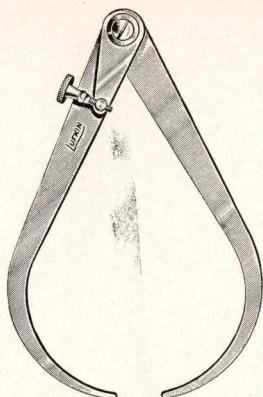
No.	Size	Price, Each
11 —	3 inch	\$0.50
11 —	4 inch	.60
11 —	5 inch	.70
11 —	6 inch	.80
11 —	8 inch	1.00
11 —	10 inch	1.10
11 —	12 inch	1.20
11 —	14 inch	1.80
11 —	16 inch	2.10
11 —	18 inch	2.55
11 —	20 inch	3.00
11 —	24 inch	3.60
11 —	30 inch	6.00
11 —	36 inch	7.20

#### FIRM JOINT INSIDE CALIPERS

No.	Size	Price, Each
12 —	3 inch	\$0.50
12 —	4 inch	.60
12 —	5 inch	.70
12 —	6 inch	.80
12 —	8 inch	1.00
12 —	10 inch	1.10
12 —	12 inch	1.20
12 —	14 inch	1.80
12 —	16 inch	2.10
12 —	18 inch	2.55
12 —	20 inch	3.00
12 —	24 inch	3.60

Packing:	3 to 6 inch	6 in a box
	8 to 12 inch	3 in a box
	14 to 20 inch	2 in a box
	24 inch and over	1 in a package

Size in inches	3	4	5	6	8	10	12	14
Wt. each in ounces	1	1	2	3	5	7	11	14
Size in inches	16	18	20	24	30	36		
Wt. each in lbs.	1¼	1½	2¼	3⅛	6	7½		



Outside Caliper  
No. 21



Inside Caliper  
No. 22

## Screw Adjusting Firm Joint Calipers

In addition to all the features of the Firm Joint Calipers shown page 198, these have a screw for making the close adjustment.

These Calipers operate smoothly and the head construction enables one to set the legs at any desired degree of tension or friction. Being a firm joint rather than a spring caliper, these are most quickly brought to size, or approximate size, and the feature of a screw with which to make the fine adjustment has certain advantages. They are of sturdy construction throughout, are nicely proportioned and well finished.

All sizes below are length of legs. Actual capacity is about one-quarter greater than this length.

### OUTSIDE CALIPERS

#### Screw Adjusting—Firm Joint

No.	Size	Price, Each
21 — 4 inch		\$1.10
21 — 6 inch		1.20
21 — 8 inch		1.50
21 — 10 inch		1.80
21 — 12 inch		2.10
21 — 14 inch		2.40
21 — 16 inch		2.70
21 — 18 inch		3.00
21 — 20 inch		3.30
21 — 24 inch		4.20

### INSIDE CALIPERS

#### Screw Adjusting—Firm Joint

No.	Size	Price, Each
22 — 4 inch		\$1.10
22 — 6 inch		1.20
22 — 8 inch		1.50
22 — 10 inch		1.80
22 — 12 inch		2.10
22 — 14 inch		2.40
22 — 16 inch		2.70
22 — 18 inch		3.00
22 — 20 inch		3.30
22 — 24 inch		4.20

Packing: 4 to 12 inch..... 3 in a box  
 14 to 20 inch..... 2 in a box  
 24 inch..... 1 in a package

Size in inches.....	4	6	8	10	12
Weight each in ozs.....	2	3	6	8	13
Size in inches.....	14	16	18	20	24
Weight each in lbs.....	1	1½	1¾	2½	3½





No. A-17



No. 17

**Firm Joint Hermaphrodite Calipers**

This type of Caliper is used principally in laying out work, locating centers, etc.

A distinctive feature of these Calipers is the adjustable joint. Like other Firm Joint Calipers, they have lock screw construction in the head, enabling one to set and hold the legs to any desired tension or friction. They are of sturdy construction throughout, smooth working, nicely proportioned and well finished.

All sizes given below are length of legs. Actual capacity is about one-quarter greater than this length.

Number **A-17** has adjustable point.

**FIRM JOINT HERMAPHRODITE CALIPERS**

**With Adjustable Point**

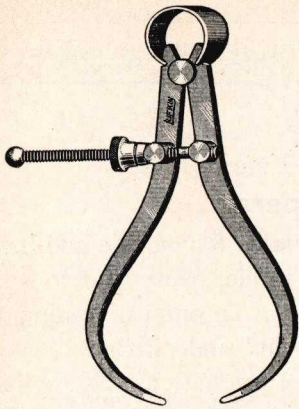
No.	Size	Price, Each
A-17	4-inch .....	\$0.80
A-17	6-inch .....	1.00
A-17	8-inch .....	1.20

**FIRM JOINT HERMAPHRODITE CALIPERS**

No.	Size	Price, Each
17	4-inch .....	\$0.60
17	6-inch .....	.80
17	8-inch .....	1.00

Packing: Three in a box

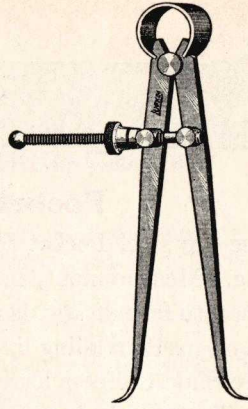
Weight per doz.: 4-inch 1¼ lbs.; 6-inch 2½ lbs.; 8-inch 3¼ lbs.



**Outside Thread Caliper  
No. 44**



**"Quick Nut"**



**Inside Thread Caliper  
No. 45**

## Thread Calipers

These are Spring Calipers used for taking measurements of outside and inside screw threads. Points are suitably shaped to work in threads. In all other respects these are identical with our general purpose "Banner" Spring Calipers.

Parts most subject to wear are properly hardened. All parts are well proportioned and nicely finished. Stiff, flat bow spring insures reliability.

The "Quick Nut" is designed for making quick adjustments. It is the best device for this purpose and a marked improvement over the common spring nut. Measurement is not only quickly obtained, but positively held. On release of pressure this nut slides freely over the threads of the caliper screw, but on slightest leg pressure grips that screw firmly.

No.	Size		With Solid Nut	With "Quick Nut"
			Price, Each	Price, Each
<b>44</b>	<b>4 inch.</b>	Outside Thread Caliper.....	\$0.90	\$1.10
<b>44</b>	<b>5 inch.</b>	Outside Thread Caliper.....	1.00	1.15
<b>44</b>	<b>6 inch.</b>	Outside Thread Caliper.....	1.05	1.20

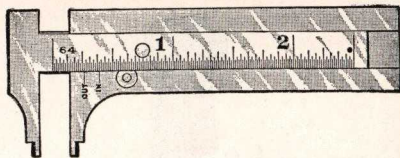
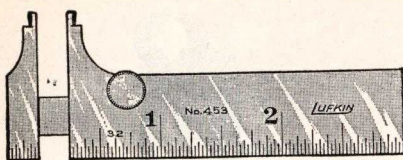
No.	Size		With Solid Nut	With "Quick Nut"
			Price, Each	Price, Each
<b>45</b>	<b>4 inch.</b>	Inside Thread Caliper.....	\$0.90	\$1.10
<b>45</b>	<b>5 inch.</b>	Inside Thread Caliper.....	1.00	1.15
<b>45</b>	<b>6 inch.</b>	Inside Thread Caliper.....	1.05	1.20

NOTE: Nos. 44 and 45 are furnished with Solid Nut unless "Quick Nut" is specified.

Packing: Three in a box

Weight each: 4-inch 1 oz.; 5-inch 2 ozs.; 6-inch 3 ozs.





## Pocket Slide Calipers

These are steel Pocket Slide Calipers suitable for outside and inside calipering. Measurement, both outside and inside, being read to a line rather than to face of jaw, is an aid to accuracy. To simplify reading, the outside and inside reading lines are marked "out" and "in."

These Slide Calipers have machine divided graduations and are finely finished. They can be locked, securely setting the slide at any point. This lock is readily set and released by the same hand in which the tool is held. The slide has stop so cannot be entirely withdrawn or lost out.

	On 3-inch and 7 cm.	On 5-inch and 12 cm.
Depth of jaws.....	$1\frac{1}{16}$ inch (17 mm.).	$1\frac{7}{16}$ inch (36 mm.).
Width of nibs, closed..	$\frac{1}{8}$ inch ( 3 mm.).	$\frac{1}{4}$ inch ( 6 mm.).

### Marked English Only

Number		Price, Each
453	3-inch. Pocket Slide Caliper. Graduation: Slide 64ths inch. Stock 32nds inch.....	\$4.00
455	5-inch. Pocket Slide Caliper. Graduation: Slide, one edge 32nds, one edge 64ths inch. Stock 32nds inch.....	5.00

### Marked Metric Only

453M	7 centimeter. Pocket Slide Caliper. Graduation: Slide $\frac{1}{2}$ millimeters. Stock millimeters.....	\$4.00
455M	12 centimeter. Pocket Slide Caliper. Graduation: Slide $\frac{1}{2}$ millimeters. Stock millimeters.....	5.00

### Marked English and Metric

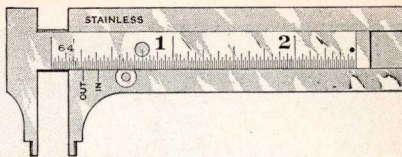
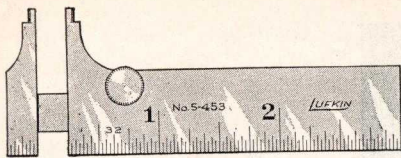
453EM	3-inch (7 cm.). Pocket Slide Caliper. Graduation: Slide, one edge 64ths inch, one edge $\frac{1}{2}$ mm. Stock 32nds inch.....	\$4.00
455EM	5-inch (12 cm.). Pocket Slide Caliper. Graduation: Slide, one edge 64ths inch, one edge $\frac{1}{2}$ mm. Stock 32nds inch.....	5.00
Packing: One in a box. Weight each: 3-inch 1 oz.; 5-inch 3 ozs.		

### Soft Leather Cases for Pocket Slide Calipers

For 3-inch Caliper... Each \$0.35      For 5-inch Caliper... Each \$0.45

NOTE: Stainless Steel Pocket Slide Calipers—See page 203.





## Stainless Steel Pocket Slide Calipers Rust-Proof

These Pocket Slide Calipers, being of high grade genuine Stainless Steel, are rust and stain-proof, a very desirable feature especially in this tool.

In pattern these are identical with our other Pocket Slide Calipers, and have the same standard features, as follows:

Are suitable for outside or inside calipering and, for both, read to a line, these lines clearly lettered "Out" and "In."

Have machine divided graduations and are finely finished.

Have lock, operated by thumb of same hand in which the tool is held, and securely setting the slide at any point.

Slide has stop, so cannot be entirely withdrawn or lost out.

Depth of jaws.....	On S-453... $1\frac{1}{16}$ inch.	On S-455... $1\frac{1}{16}$ inch.
Width of nibs, closed.....	On S-453... $\frac{1}{8}$ inch.	On S-455... $\frac{1}{4}$ inch.

Number

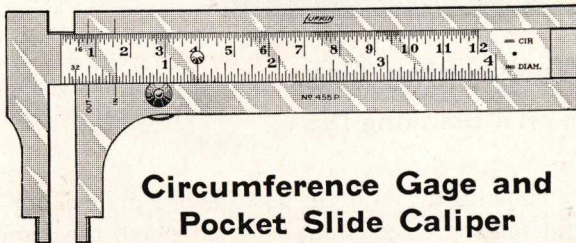
**S-453** 3-inch. Stainless Steel Pocket Slide Caliper.

Graduation: Slide 64ths inch. Stock 32nds inch..... \$6.75

**S-455** 5-inch. Stainless Steel Pocket Slide Caliper.

Graduation: Slide, one edge 32nds, one edge 64ths inch.

Stock 32nds inch..... 8.00



## Circumference Gage and Pocket Slide Caliper

This is a standard pattern steel Pocket Slide Caliper but carrying circumference as well as standard measurement on the slide. Lower edge of slide is graduated standard inches to 32nds; upper edge circumference inches to 16ths. Stock is graduated 5 inches to 32nds.

Applying this Caliper to diameters, outside or inside, circumferences as well as diameters can be read directly. Capacity is  $3\frac{3}{4}$ -inch diameter,  $11\frac{3}{4}$ -inch circumference. Jaws being  $1\frac{1}{16}$  inch deep, this tool will caliper a cylinder up to  $2\frac{3}{4}$ -inch diameter. Width of nibs when closed is  $\frac{1}{4}$ -inch.

With this Slide Caliper all measurements are read to a line rather than to face of jaw, and the reading lines are clearly marked "out" and "in." These features make for accurate measuring.

This Caliper has convenient lock, also has slide stop. It has machine divided graduations and is finely finished.

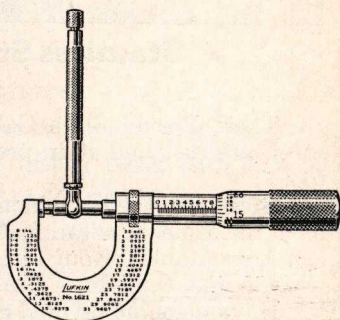
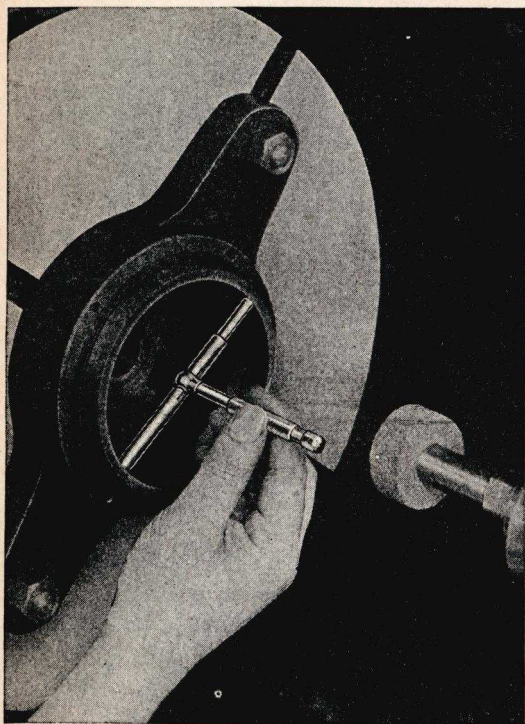
Number

**455P** 5-inch. Circumference Gage and Pocket Slide Caliper..... \$5.00

Price, Each

Packing: One in a box. Weight each: 3-inch 1 oz.; 5-inch 3 ozs.





**Taking Exact  
Measurement from  
Telescoping Gage  
with a Standard  
Micrometer**

### **LUFKIN Telescoping Gage in Use on a Blanking Die**

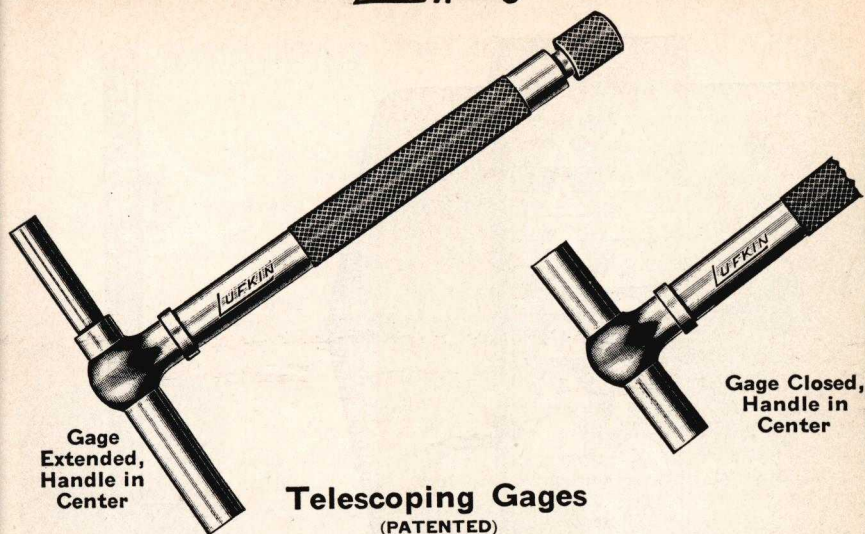
In use on a blanking die, note the position of handle of our Telescoping Gage. Even though the Gage is not fully extended, the handle is "Just where it should be," in the center of the tool.

This outstanding feature allows the Gage to be kept in balance at all times, giving accurate results.

With the two plungers telescoping into each other and the handle adjustable as to position on the extended tool, there is no measurement within the capacity of the tool that cannot be taken with our Telescoping Gage.

*DESCRIPTION AND LISTINGS—SEE PAGE 205*





## Telescoping Gages

(PATENTED)

Using a Telescoping Gage the inside size of slots or holes is quickly and accurately taken. The measurement, down to one thousandth inch or less, is then taken from the Gage with an outside Micrometer, as illustrated page 204.

Our Telescoping Gages consist of a handle and two plungers, one telescoping into the other, and both under constant spring tension. Plungers can be locked by slight turn of the knurled screw in the end of the handle. The ends of the plungers are hardened and ground to a radius, giving clearance in the smallest opening the Gage will enter.

Unlike other similar tools the handle of our Telescoping Gage can always be locked in the center of plungers, which gives that perfect balance and feel so essential to accuracy.

### Method of Use

Compress plungers, then lock them by turning screw in handle.

Insert Gage into hole, then release lock.

(The plungers will expand themselves to exact size of hole or slot.)

Then lock plungers, remove the Gage, and measure it with a Micrometer.

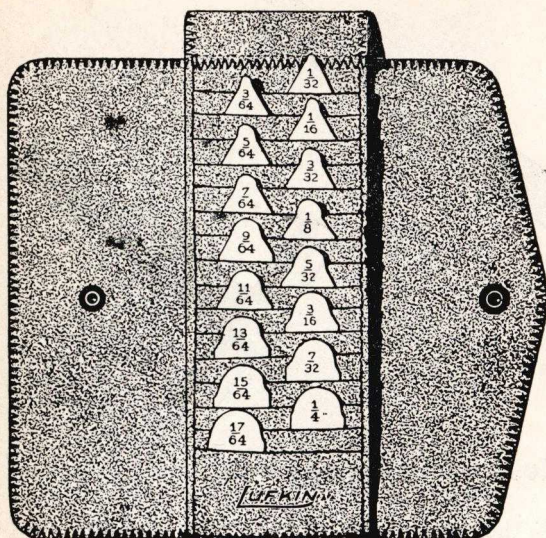
### Our Telescoping Gages Are Made in Six Sizes

The smallest will enter a  $\frac{5}{16}$  inch hole; the largest will expand to 6 inches.

Number		Weight Each	Price, Each
*79AA	Telescoping Gage. Range: $\frac{5}{16}$ to $\frac{1}{2}$ inch.....	$\frac{1}{2}$ oz.	\$ 1.80
79A	Telescoping Gage. Range: $\frac{1}{2}$ to $\frac{3}{4}$ inch.....	$\frac{1}{2}$ oz.	1.80
79B	Telescoping Gage. Range: $\frac{3}{4}$ to $1\frac{1}{4}$ inches.....	$\frac{1}{2}$ oz.	2.10
79C	Telescoping Gage. Range: $1\frac{1}{4}$ to $2\frac{1}{8}$ inches.....	1 oz.	2.40
79D	Telescoping Gage. Range: $2\frac{1}{8}$ to $3\frac{1}{2}$ inches.....	3 ozs.	3.00
79E	Telescoping Gage. Range: $3\frac{1}{2}$ to 6 inches.....	$3\frac{1}{2}$ ozs.	3.60
79SS	Set of Telescoping Gages in Red Leatherette Case. Includes one each Nos. 79A, 79B and 79C. Range of Set: $\frac{1}{2}$ to $2\frac{1}{8}$ inches.....	4 ozs.	7.30
79S	Set of Telescoping Gages in Red Leatherette Case. Includes one each Nos. 79A, 79B, 79C, 79D, 79E. Range of Set: $\frac{1}{2}$ to 6 inches.....	9 ozs.	14.40
	Packing One each or one set in a box		

\*NOTE:—Sets 79SS and 79S with Gage 79AA included, specify by adding letter "X," as 79SSX or 79SX, and add to price \$1.80.





Set No. 77A



Holder No. 20

## Radius Gages

(PATENTED)

But a few of the many applications of Radius Gages (otherwise known as Fillet Gages) are shown on next page. Such Gages are used by tool and diemakers, pattern makers, templet layout men, screw machine operators and other mechanics.

*The following 2 outstanding features are found only in our Radius Gages:*

- (1) Each blade (or gage) is a separate unit; thus each one can be most conveniently and accurately applied to the work.
- (2) Each blade carries the corresponding external and internal forms, the practical combination.

In our Radius Gages, each of the steel blades or gages is prominently marked with its radius, and all the gages comprised in a Set are put up in an attractive and durable leatherette folder. This folder insures proper protection for all and makes most simple and easy the selection of the individual gage wanted.

*We Offer Radius Gages in 4 Different Sets, Their Contents as Follows:*

- (77A) 16 Gages . . . Radii from  $\frac{1}{32}$  to  $\frac{17}{64}$  inch by 64ths.
- (77B) 8 Gages . . . Radii from  $\frac{9}{32}$  to  $\frac{1}{2}$  inch by 32nds.
- (77C) 24 Gages . . . Sets 77A and 77B combined.
- (77D) 16 Gages . . . Radii from  $\frac{1}{32}$  to  $\frac{1}{2}$  inch by 32nds.

## Radius Gage Holder

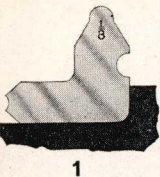
*Not regularly furnished with Sets. If wanted order as "No. 20 Holder."*

Our Holder or Handle for Radius Gage Blades is especially well suited to its work. It is four inches long and enables one to gage nicely even in small and out-of-the-way places. Blade is placed in either the 30 or 45 degree slot of this Holder. It is then securely held, not only at either of these angles, but also when sharply cocked to either side. Knurled nut at other end of Holder rigidly clamps the blade or gage.

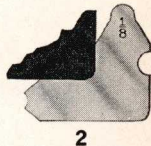
FOR LISTINGS SEE NEXT PAGE



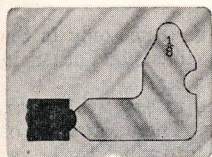
## A Few of the Many Uses of LUFKIN Radius Gages



**View No. 1:** Shows gage used to determine the radius of inside corners or fillets for one-fourth or less of a circle. Straight sides of gage are at 90 degrees and can be used for checking location of radius.



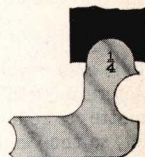
2



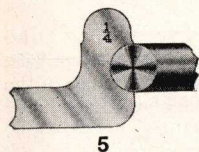
3

**View No. 3:** Shows work being checked on a piece of glass. Also checks any other convex parts, where radius is one-fourth or more of circle, that have projections which will not permit the use of gage as in Views 2 and 5.

**View No. 4:** Shows use of gage on concave cutter of one-half or less of circle. This gage can be used to check the radius shown in View No. 1, but will not show the relation of radius to sides.



4



5

**View No. 5:** Checks one-half of a circumference.

## Listings of Radius Gages and Holder

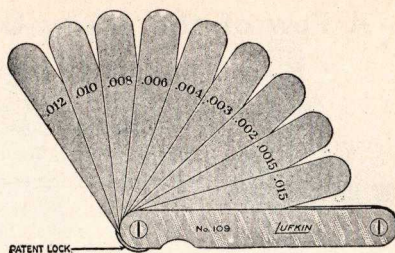
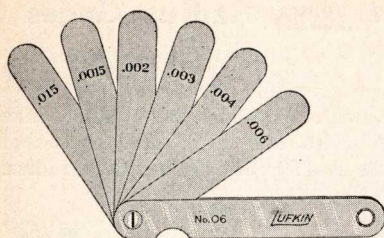
(Descriptions on page 206)

Number		Price, Each
77A	Radius Gage Set. Complete with Leatherette Folder. 16 gages. Radii from $\frac{1}{32}$ to $\frac{1}{64}$ inch by 64ths .....	\$4.00
77B	Radius Gage Set. Complete with Leatherette Folder. 8 gages. Radii from $\frac{1}{32}$ to $\frac{1}{2}$ inch by 32nds. ....	2.50
77C	Radius Gage Set. Complete with Leatherette Folder. 24 gages. (Consists of Sets 77A and 77B combined). Radii from $\frac{1}{32}$ to $\frac{1}{64}$ inch by 64ths, and $\frac{1}{32}$ to $\frac{1}{2}$ inch by 32nds. .	6.50
77D	Radius Gage Set. Complete with Leatherette Folder. 16 gages. Radii from $\frac{1}{32}$ to $\frac{1}{2}$ inch by 32nds. ....	4.50
20	Holder Only for all above Radius Gages .....	.75
	<b>Extra Blades (or Gages) for Above Sets</b>	
	From $\frac{1}{32}$ to $\frac{1}{64}$ inch .....	.40
	From $\frac{1}{32}$ to $\frac{1}{2}$ inch .....	.45

Packing: One set in a box

Weight per Set: 77A, 3 ozs.; 77B, 6 ozs.; 77C and 77D, 8 ozs. each





## Thickness Gages

### All (except No. 06) with Patent Lock

Thickness Gages, also called Feeler Gages, are extensively used not only in the manufacture and servicing of automobiles, but by toolmakers, machinists and others in jig and fixture work, in the making of gages, in experimental work, etc.

All Gages on this page have leaves of tempered steel, ground to exact thickness, individually tested, and each one clearly marked with its thickness. These leaves are of the popular width and length. All of these Gages have regular case into which the leaves fold.

No. **06**, 6-leaf, is our lowest priced Gage, yet a good reliable tool with regular case. It is extensively used by garage mechanics, car owners, truck and tractor operators in determining clearance of tappets, fitting pistons, and adjusting spark gap. It is a simple matter to remove screw stud and insert a new leaf in case. Other end of case has an eyelet, so the Gage may be carried on key ring or hung up.

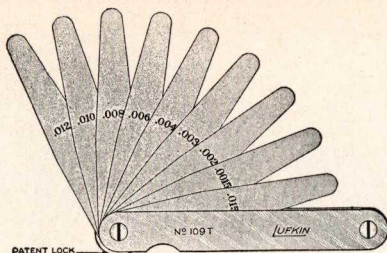
Nos. **109**, **109M** and **116M** have patent lock feature which is very handy in all work. By means of a lock nut any one or more leaves can be locked in any position, also all leaves can be securely held in the case when not in use. Lock also permits use of the Gage in its overall length, which, with leaf extended and locked, is 6 inches. Lock holds blade firmly, making it easy to insert in any opening. It also reduces the chance of error. Lock is operated by same hand in which the Gage is held.

### All with Leaves 3 Inches Long, 1/2 Inch Wide

Number		Price, Each
<b>06</b>	<b>6-Leaf Thickness Gage.</b> Thicknesses: .0015, .002, .003, .004, .006, .015 inch.....	\$0.90
<b>109</b>	<b>9-Leaf Thickness Gage.</b> Thicknesses: .0015, .002, .003, .004, .006, .008, .010, .012, .015 inch..	1.50
<b>109M</b>	<b>9-Leaf Metric Thickness Gage.</b> Thicknesses: .04, .05, .06, .07, .08, .10, .15, .20, .25 millimeters. Combined thickness 1 mm. Leaves approximately 12 mm. wide, 7 1/2 cm. long .....	1.50
<b>116M</b>	<b>16-Leaf Metric Thickness Gage.</b> Thicknesses: .04, .05, .06, .07, .08, .10, .15, .20, .25, .30, .35, .40, .45, .50 millimeters and two leaves of 1 mm each. Combined thickness 5 mm. Leaves approximately 12 mm. wide, 7 1/2 cm. long .....	2.50

Packing: No. **06**, Six in a box  
All others—One in a box, three in a carton





## Thickness Gages with Tapered Leaves

### With Patent Lock

These Thickness Gages, all having leaves tapered to  $\frac{1}{4}$  inch width, are especially popular because they give access to narrow openings. Aside from the leaves being tapered, these Gages are identical with those of similar numbers on page 208.

All Gages below have leaves of tempered steel, ground to exact thickness, individually tested and each one clearly marked with its thickness. These leaves are of the popular length, 3 inches. All Gages have regular case into which the leaves fold.

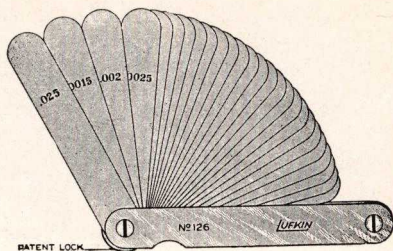
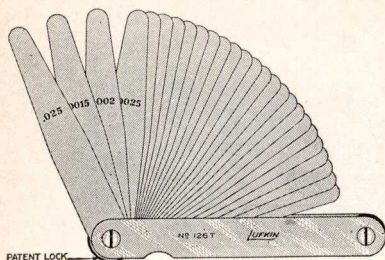
Patent lock is a feature of these Gages, always convenient and especially valuable in some classes of work. By means of a lock nut any one or more leaves can be locked in any position or all leaves securely held in the case when not in use. Lock also permits use of the Gage in its overall length, which, with leaf extended and locked, is 6 inches. Lock holds blade firmly making it easy to insert in any opening. It also reduces the chance of error. Lock nut is operated by same hand in which the Gage is held

### All with Leaves 3 Inches Long, Tapered to $\frac{1}{4}$ Inch Wide

Number		Price Each
<b>109T</b>	<b>9-Leaf Thickness Gage.</b> With tapered leaves. Thicknesses: .0015, .002, .003, .004, .006, .008, .010, .012, .015 inch.	<b>\$1.50</b>
<b>110T</b>	<b>10-Leaf Thickness Gage.</b> With tapered leaves. Thicknesses: .0015, .002, .0025, .003, .004, .006, .008, .010, .012, .015 inch. (Same as No. <b>109T</b> but having in addition leaf .0025) . . . . .	<b>1.75</b>
<b>109TM</b>	<b>9-Leaf Metric Thickness Gage.</b> With tapered leaves. Thicknesses: .04, .05, .06, .07, .08, .10, .15, .20, .25 millimeters. Combined thickness 1 mm. Leaves approximately $7\frac{1}{2}$ cm. long, tapered to $6\frac{1}{2}$ mm. . . . .	<b>1.50</b>

Packing: One in a box, three in a carton





## Thickness Gages

### With Patent Lock

#### With Tapered Leaves.

#### With Straight Leaves.

A feature of these Gages is the wide range of thicknesses they offer. Nos. **126** and **126T** have leaves increasing in thickness by one-thousandth inch from .002 to .025 inclusive and carry also leaves .0015 and .0025 inch. No. **122** runs by thousandths from .004 to .025 inch. No. **126T**, because of its range of thicknesses and also having tapered leaves giving access to narrow openings, will handle practically any work required of a Thickness Gage.

All Gages on this page have leaves of tempered steel, ground to exact thickness, individually tested, and each one clearly marked with its thickness. Leaves of Nos. **126** and **122** are  $\frac{1}{2}$  inch wide; those of No. **126T** are tapered to  $\frac{1}{4}$  inch width. All three have regular case into which the leaves fold.

Patent lock is a feature of these Gages. By means of a lock nut any one or more leaves can be locked in any position or all securely held in the case when not in use. Lock also permits use of the Gage in its overall length, which, with leaf extended and locked, is 6 inches. Lock holds blade firmly, making it easy to insert in any opening. It also reduces the chance of error. Lock nut is operated by same hand in which the Gage is held.

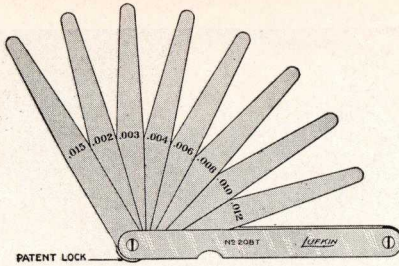
### All with Leaves 3 Inches Long

#### Number

#### Price Each

<b>126T</b>	26-Leaf Thickness Gage. With tapered leaves. Thicknesses: .0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025 inch. ....	\$3.50
<b>126</b>	26-Leaf Thickness Gage. With straight leaves. Exactly same thicknesses as No. <b>126T</b> but leaves not tapered. ....	3.50
<b>122</b>	22-Leaf Thickness Gage. With straight leaves. Thicknesses: .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025 inch. ....	2.50

Packing: One in a box, three in a carton



## Thickness Gages with Tapered Leaves

### With Patent Lock

These Thickness Gages have longer leaves ( $4\frac{1}{2}$  and 6 inches) therefore are best for work requiring long reach. They are especially popular with motor mechanics for determining clearance between pistons and cylinder walls. On such work the patent lock is very convenient, as leaf may be locked making it easiest to insert and, in line with the case, giving overall reach of 9 inches with Gage No. **208T** and of 12 inches with **308T**. Both have leaves tapered to  $\frac{1}{4}$ -inch width, giving access to narrow openings.

All leaves are of tempered steel, ground to exact thickness, individually tested, and each one clearly marked with its thickness. All Gages have regular case into which the leaves fold.

Lock nut, operated by same hand in which Gage is held, will lock any one or more leaves in any position, easiest to use and reducing chance of error. It also will securely hold all leaves in case when not in use.

Number		Price, Each
<b>208T</b>	<b>8-Leaf Thickness Gage.</b> With tapered leaves, $4\frac{1}{2}$ inches long. Thicknesses: .002, .003, .004, .006, .008, .010, .012, .015 inch. Overall length with leaf extended and locked, 9 inches.....	\$2.50
<b>308T</b>	<b>8-Leaf Thickness Gage.</b> With tapered leaves, 6 inches long. Thicknesses: Same as No. 208T. Overall length with leaf extended and locked, 12 inches.....	3.00
	Packing: One in a box	

### Thickness Gage Leaves Only

For use as separate pieces or for replacing Leaves in Gages.

In ordering 3-inch Leaves.....Specify thickness and "straight" or "tapered."  
In ordering  $4\frac{1}{2}$  and 6-inch Leaves.....Specify thickness.

Length	Price, Each
<b>3 inch Leaves.</b> Straight or tapered.....	\$0.25
<b><math>4\frac{1}{2}</math> inch Leaves.</b> Tapered Only.....	.40
<b>6 inch Leaves.</b> Tapered Only.....	.50

## Ground Thickness Gage Stock

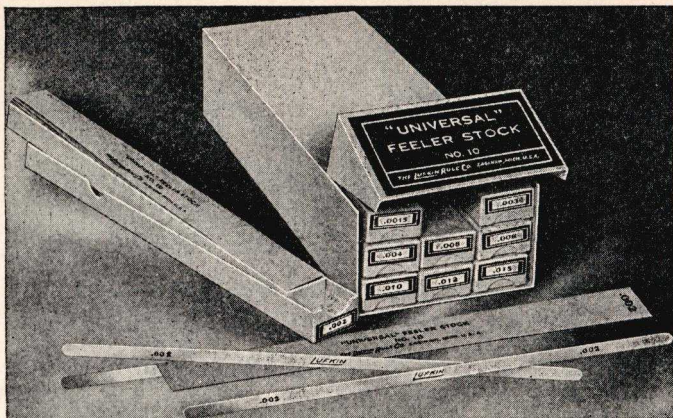
This is offered to meet the demand for Ground Thickness Gage Stock Only, in long pieces. This Stock we supply in any of our standard thicknesses,  $\frac{1}{2}$  inch wide, and in lengths listed below. Each of these pieces is marked with its thickness.

*Always Specify "Ground Stock" and state Thickness and Length.*

Length	Price, Each
<b>6-inch Pieces</b> .....	\$0.25
<b>12-inch Pieces</b> .....	.50
<b>18-inch Pieces</b> .....	.75

NOTE: No. 10 "Universal" Feeler Stock—See page 212.





## "Universal" Feeler Stock—No. 10

### In 1-Foot Pieces

Clean Stock.

Handy Length.

Popular Priced.

In the manufacture and servicing of automobiles this Feeler Stock is most extensively used, practically a necessity. It is used in determining the clearance of tappets, fitting pistons, adjusting spark gap, ring groove clearance, gear play, etc. It is employed in other shops also by toolmakers and machinists, and in experimental work.

Each piece of this Feeler Stock has both ends rounded and marked with its thickness. This Stock is  $\frac{1}{2}$  inch wide and each 1-foot piece is in individual envelope, flat and ready to hand out. This prevents the waste due to rust and stain from handling, and to breaking from a coil.

#### No. 10 Feeler Stock.

Packing: Twelve 1-foot pieces of one thickness in a box, each piece in individual envelope

#### Made in the following Thicknesses

Thickness in inches	Price per foot	Thickness in inches	Price per foot	Thickness in inches	Price per foot
.0015	\$0.34	.006	\$0.24	.010	\$0.20
.002	.34	.007	.20	.012	.20
.003	.34	.008	.20	.013	.20
.004	.24	.009	.20	.015	.20
.005	.24				

No. 10 Assortment of Feeler Stock ..... Price per Assortment \$27.60

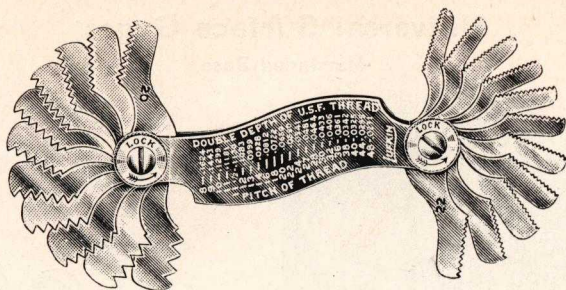
Each Assortment consists of 9 boxes of 12 1-ft. pieces per box, one box of each of the following thicknesses:

.0015, .002, .003, .004, .006, .008, .010, .012, .015

(The 9 boxes comprising this Assortment are in a handy open end carton, as illustrated above)

NOTE: Ground Thickness Gage Stock—See page 211.





## Screw Pitch Gages

### With Patent Locks.

### Without Locks.

These Gages measure the pitch, or number of threads per inch, of both the U. S. Form Thread and the Sharp "V" Thread. All have regular case into which the blades fold at each end. Each blade (or leaf) is marked with its pitch. All blades are shaped to quickly measure the inside threads of nuts as well as the outside threads of bolts, screws, etc. On the outside of the case the Double Depth of the U. S. Form Thread is given, this being the recognized standard thread. To obtain the Double Depth of Sharp "V" Threads, for the same pitch, add  $\frac{1}{3}$  to the Double Depth given for U. S. Form Thread.

Screw Pitch Gages of Series **74** have patent locks; those of Series **73** are without lock; otherwise the two Series are identical. Lock nut is at both ends and is easily operated by same hand in which the Gage is held. Thus any one or more blades can be locked in any position or all locked in case when not in use. This feature eliminates chances of error, and is especially handy where one pitch is being repeatedly used.

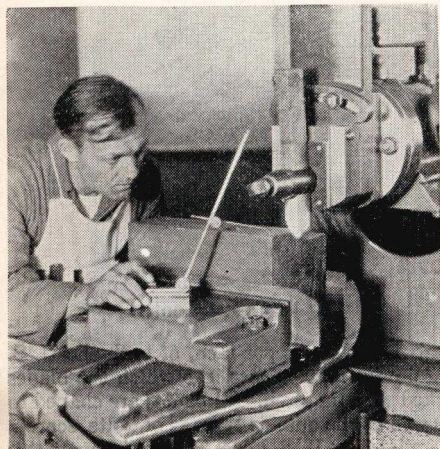
Number	Price, Each
<b>74A</b> 22-Pitch Gage. With Patent Locks. Pitches: 8-9-10-11-11½-12-13-14-16-18-20 22-24-27-28-30-32-36-38-40-44-48.....	\$1.50
<b>73A</b> 22-Pitch Gage. Without Lock. Pitches: Exactly same as Gage No. 74A, above.....	1.25
<b>74B</b> 24-Pitch Gage. With Patent Locks. Pitches: 4-4½-5-5½-6-7-8-9-10-11-11½-12 13-14-16-18-20-22-24-27-28-30-32-36.....	1.75
<b>73B</b> 24-Pitch Gage. Without Lock. Pitches: Exactly same as Gage No. 74B, above.....	1.50
<b>74C</b> 28-Pitch Gage. With Patent Locks. Pitches: 8-9-10-11-11½-12-13-14-16-18-20-22-24-27 28-30-32-36-38-40-44-48-50-56-60-64-72-80.....	2.00
<b>73C</b> 28-Pitch Gage. Without Lock. Pitches: Exactly same as Gage No. 74C, above.....	1.75
<b>74D</b> 28-Pitch Gage. With Patent Locks. Pitches: 3-3¼-3½-4-4½-5-5½-6-7-8-9-10-11-11½ 12-13-14-16-18-20-22-24-27-28-30-32-36-38.....	2.00
<b>73D</b> 28-Pitch Gage. Without Lock. Pitches: Exactly same as Gage No. 74D, above.....	1.75

Packing: One in a box, six in a carton



## Universal Surface Gages

Hardened Base



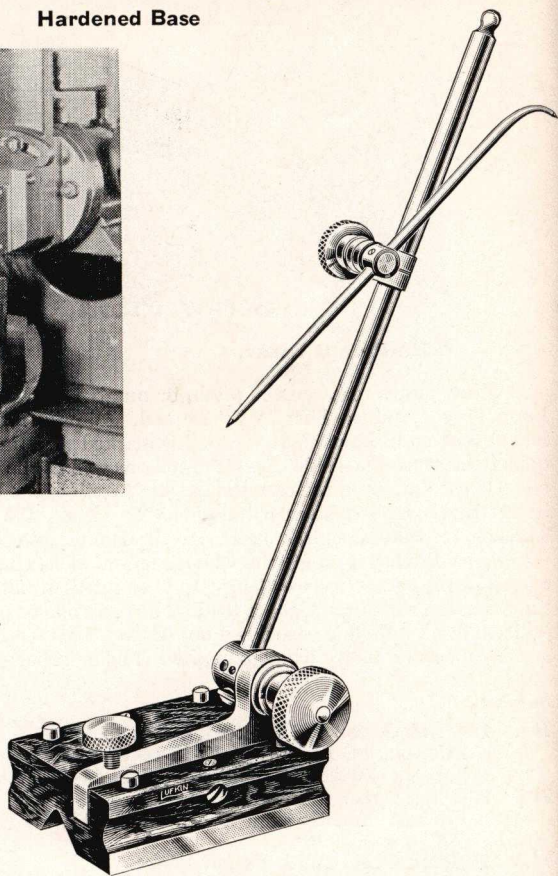
These Surface Gages embody all the latest improvements in design and construction.

Base is well proportioned, hardened, and is finished in mottled blue, with all measuring faces ground and polished. Bottom and one end of base are grooved. Base has four gage pins, for use as guides on linear work.

The spindle is of hollow, rigid steel tubing, and being light, will not, even when used with attachments, cause base to tip. It can be set upright, at any angle, or so that scriber can be used below the base. For small work the spindle may be removed and scriber inserted through the small hole for it in the rotating head. The spindle and scriber holes are kept constantly in alignment by set screws.

The fine adjustment, to get exact setting, is made with the screw at one end, after the spindle has been clamped in approximate position. This fine adjustment screw works against a stiff spring at the other end and allows greater range of adjustment than on any other similar gage.

Length of spindle, as listed, does not include the base.



### Number

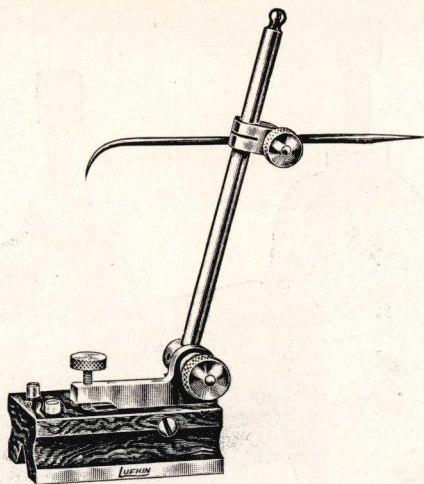
Bases of Nos. 520A, 520B and 520C are  $3\frac{1}{4}$  inches long

### Price, Each

<b>520A</b>	<b>Universal Surface Gage.</b> With 9-inch spindle. . . . .	<b>\$5.50</b>
<b>520B</b>	<b>Universal Surface Gage.</b> With 9 and 12-inch spindles. . . . .	<b>6.00</b>
<b>520C</b>	<b>Universal Surface Gage.</b> With 12-inch spindle. . . . .	<b>5.75</b>

Packing: One in a box

Weight each: Nos. 520A and 520C,  $2\frac{3}{4}$  lbs.; No. 520B, 3 lbs.



## Toolmakers Universal Surface Gages

### Hardened Base

These Surface Gages are especially suitable for light work. They have all the latest improvements in design and construction.

The base is well proportioned, is hardened, and is finished in mottled blue, with all measuring faces ground and polished. Bottom and one end of base are grooved for cylindrical work. Base has two gage pins that can be pushed down for use as guides on linear work.

The spindle passes through the rotating head and can be set upright, at any angle, or so that the scribe can be used below the base. For small work the spindle may be removed and the scribe inserted through the small hole for it in the rotating head. The holes through which spindle and scribe pass are kept in alignment at all times by small set screws.

The fine adjustment, to get exact setting, is made with the screw at one end, after the spindle has been clamped in the approximate position desired. This fine adjustment screw works against a stiff spring at the other end and allows greater range of adjustment than on any other similar Gage.

Length of spindle, as listed, does not include the base. The base takes very little space in the tool chest for it is but  $1\frac{1}{2}$  inches wide, and its height including rotating head is  $1\frac{1}{2}$  inches.

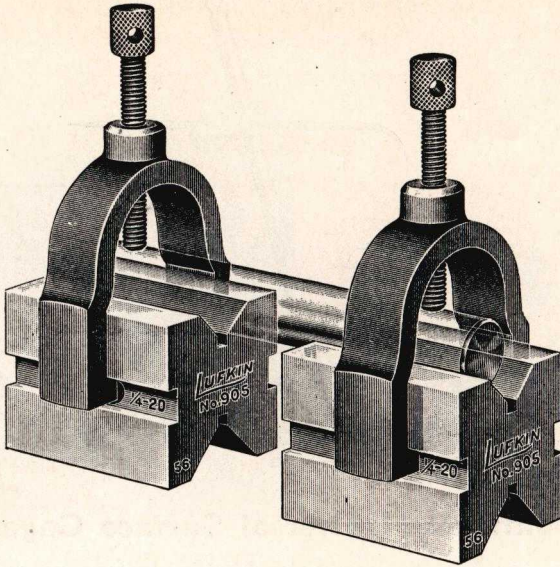
Bases of Nos. **521A** and **521B** are  $2\frac{1}{8}$  inches long

Number		Price, Each
<b>521A</b>	Toolmakers Surface Gage. With 4-inch spindle. . . . .	\$4.50
<b>521B</b>	Toolmakers Surface Gage. With 4 and 7-inch spindles. . . . .	4.80

Packing: One in a box

Weight each: No. **521A**, 12 ozs.; No. **521B**, 14 ozs.





## V Blocks and Clamps

Hardened and Ground

V Blocks are designed for use where an extremely accurate set is required. They are especially useful in laying out work in connection with the surface plate or angle iron; milling or grinding work can be firmly held when clamped in the V's of the blocks.

The Blocks are made of tool steel, hardened and ground. The V's are ground central, parallel and square with the ends and sides. The Blocks are made and numbered in pairs, so the V grooves in each pair are always in alignment. The clamps are of steel, drop forged, making them strong and durable yet light weight.

A feature of these V Blocks is the tapped hole through the sides, particularly useful when using the blocks on an angle iron fastened to a lathe face plate or a magnetic chuck. By using a  $\frac{1}{4}$ -20 screw, the Block can be securely fastened at any angle desired to the angle iron, without the use of other clamps which would interfere with the work. This applies to all layout work, lathe work, milling, drilling, grinding, etc.

Each Block is about  $1\frac{5}{8}$  inches long and  $1\frac{1}{4}$  inches square and has clamping capacity of one inch diameter.

### Number

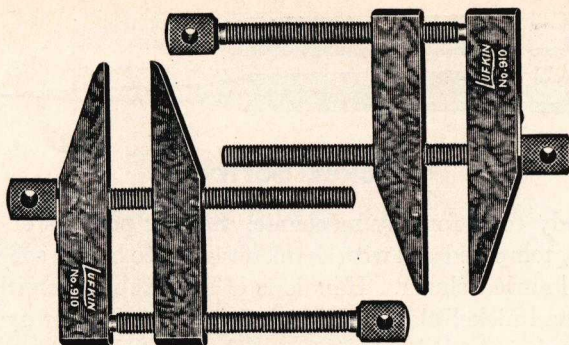
**905** Set of V Blocks and Clamps. (2 blocks and 2 clamps per set).....  
(Blocks sold only in sets as they are made in pairs)

Price  
Per Set  
**\$6.75**

Packing: One set in a box

Weight per set:  $1\frac{3}{4}$  lbs.

Extra Clamps only for V Blocks.....Price, each \$0.90



## Toolmakers Parallel Clamps

These Clamps are of steel, case-hardened, and are very useful for holding small work together in drilling, tapping, etc. They are so designed as to be strong and rigid and to insure a positive hold. Ends of the jaws are rounded to permit clamping under shoulders or in recesses.

Clip attachment prevents sliding of the loose jaw on the screw. Ours is a flat clip, flush with back of the jaw, which eliminates interference with fingers when opening and closing clamp.

*Illustration Shows One Pair (2 Complete Clamps)*

Number		Clamping Capacity	Length of Jaws	Price per Pair (2 Clamps)
<b>910A</b>	Pair of Parallel Clamps . . . . .	$\frac{3}{4}$ inch	$1\frac{5}{8}$ inch	\$1.40
<b>910B</b>	Pair of Parallel Clamps . . . . .	$1\frac{1}{4}$ inch	2 inch	1.70
<b>910C</b>	Pair of Parallel Clamps . . . . .	$1\frac{3}{4}$ inch	$2\frac{1}{2}$ inch	2.00
<b>910D</b>	Pair of Parallel Clamps . . . . .	$2\frac{1}{4}$ inch	3 inch	2.40
<b>910E</b>	Pair of Parallel Clamps . . . . .	$2\frac{3}{4}$ inch	4 inch	3.00

Packing: One pair (2 clamps) in a box

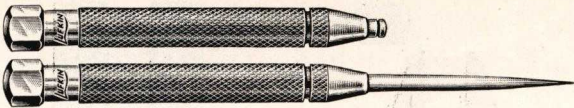
Weight per Pair: **910A**, B, C, D, E, 3, 6, 10, 18 and 30 ounces respectively

## Parts of Toolmakers Parallel Clamps

When ordering Jaws . . . Specify stock number of Clamp and "Jaw with tapped holes" or "Jaw with holes not tapped."

When ordering Screws . . . Specify stock number of Clamp and "Full threaded Screw" or "Smooth end Screw."





Pocket Scribers

Very handy tools for any mechanic. Scriber point is of best quality steel, properly tempered and with shank designed to hold it solidly in handle by means of knurled chuck. Handle is of steel tubing, knurled to afford secure hold, and nickel plated. Illustrations show Scriber open ready for use, also closed, i.e., with point reversed, inserted and locked into the handle. The hexagon head prevents rolling.

Number		Price Each
87A	Pocket Scriber. Dia. handle $\frac{1}{4}$ inch. Length point $2\frac{3}{8}$ inches.....	\$0.35
87B	Pocket Scriber. Dia. handle $\frac{3}{8}$ inch. Length point $2\frac{7}{8}$ inches.....	.50
	Points Only for Above Scribers. (Specify A or B).....	.15

Packing: Six in a box

NOTE: Blades of Screw Drivers Nos. 187A and 187B, listed page 219, will fit handles of Pocket Scribers 87A and B. On such Screw Driver Blades Only, specify "A" or "B," and for their prices see page 219.



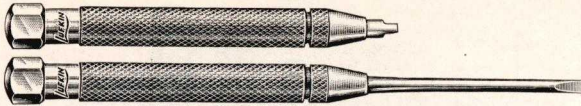
Scribers

These Scribers also are handy tools. Their points are of best quality steel, properly tempered. These points, as well as the stock, have knurled portions for solid finger grip. The stock is nickel plated and of size convenient to hold. All points fit either end of the stock and are threadedly engaged in the stock. The long bent point is particularly valuable in reaching through holes, etc.

Length of Scriber: With short bent point, 9 inches.  
With long bent point, 12 inches.

Number		Price Each
88A	Scriber Complete. With 1 straight, 1 long and 1 short bent point.....	\$0.60
88B	Scriber. With 1 straight point and 1 short bent point.....	.45
	(Straight Point.....	.15
	Points Only for above Scribers: Short Bent Point.....	.15
	Long Bent Point.....	.20

Packing: Six in a box



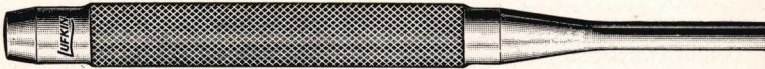
## Pocket Screw Drivers

Handy vest pocket Screw Drivers. Blade is of best quality steel, properly shaped and tempered. Shank of blade together with knurled chuck of handle most firmly hold the blade, so it cannot come out or turn in the handle. Handle is of steel tubing, knurled to afford secure hold, and nickel plated. Illustrations show Screw Driver ready for use, also with point reversed, inserted and locked into the handle for convenience in carrying. The hexagon head prevents rolling.

Number		Price Each
<b>187A</b>	Screw Driver. Dia. handle $\frac{1}{4}$ inch. Length blade $2\frac{1}{2}$ inches.....	\$0.40
<b>187B</b>	Screw Driver. Dia. handle $\frac{3}{8}$ inch. Length blade 3 inches.....	.50
	Blades Only for above Screw Drivers. (Specify A or B).....	.15

Packing: Six in a box

NOTE: Points of Scribers Nos. **87A** and **87B**, listed page 218, will fit handles of Screw Drivers **187A** and **B**. On such Scriber Points Only, specify "A" or "B," and for their prices see page 218.



## Drive Pin Punches

Listed Individually, Also Set of 8 In Leatherette Case

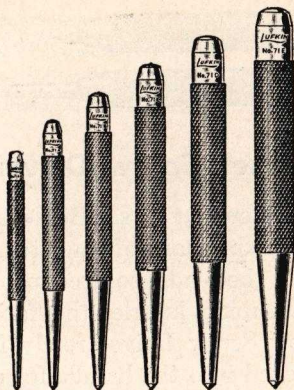
These Punches are made of best quality tool steel. They are nicely shaped, hardened and polished. Body is knurled to afford good finger grip.

Number	Diameter of Point	Length of Punch	Price Each
<b>72A</b>	$\frac{1}{16}$ inch	$3\frac{3}{8}$ inches	\$0.25
<b>72B</b>	$\frac{3}{32}$ inch	$3\frac{1}{2}$ inches	.25
<b>72C</b>	$\frac{1}{8}$ inch	$3\frac{3}{4}$ inches	.25
<b>72D</b>	$\frac{5}{32}$ inch	4 inches	.25
<b>72E</b>	$\frac{3}{16}$ inch	$4\frac{1}{8}$ inches	.25
<b>72F</b>	$\frac{7}{32}$ inch	$4\frac{3}{8}$ inches	.25
<b>72G</b>	$\frac{1}{4}$ inch	$4\frac{5}{8}$ inches	.25
<b>72H</b>	$\frac{5}{16}$ inch	$4\frac{7}{8}$ inches	.25

**72S** Set of 8 Drive Pin Punches. In Leatherette Case... Price Per Set \$2.25  
Contains one each of above Punches, **72A** to **72H** inclusive.

Packing: Nos. **72A** to **72G**, 12 in a box. No. **72H**, 6 in a box  
No. **72S**, 3 Sets in a box  
Weight: Set No. **72S**, 12 ozs.





## Center Punches

Listed Individually, Also Set of 6 in Leatherette Case

These Center Punches are made of fine quality tool steel. They are properly shaped and points carefully ground. These Punches are hardened and polished and have body knurled to afford good finger grip.

Number		Length of Punch	Diameter at Top of Tapered Point	Price Each
71AA	Center Punch.....	3 $\frac{1}{8}$ inches	$\frac{1}{16}$ inch	\$0.25
71A	Center Punch.....	3 $\frac{1}{2}$ inches	$\frac{5}{64}$ inch	.25
71B	Center Punch.....	3 $\frac{7}{8}$ inches	$\frac{3}{32}$ inch	.25
71C	Center Punch.....	4 $\frac{1}{4}$ inches	$\frac{9}{64}$ inch	.25
71D	Center Punch.....	4 $\frac{5}{8}$ inches	$\frac{5}{32}$ inch	.25
71E	Center Punch.....	5 inches	$\frac{3}{16}$ inch	.30

**71S** Set of 6 Center Punches. In Leatherette Case.... Price Per Set **\$1.75**  
Contains one each of above Punches, **71AA** to **71E** inclusive.

Packing: Nos. **71AA** to **71D**, 12 in a box  
No. **71E**, 6 in a box  
No. **71S**, 3 Sets in a box  
Weight: Set No. **71S**, 6 ozs.



## Set of Tempered Steel Rules with Holder

These Rules and their Holder are especially suitable for measuring in small places where an ordinary rule would not enter. They are useful in general tool and die work and also wherever measuring is to be done in grooves, on narrow shoulders, in recesses, keyways, etc.

All Rules in this Set are thin, are made of tempered steel, machine divided, carefully ground and well finished. All are regularly furnished graduated one side 32nds, other side 64ths inch. (The  $\frac{1}{2}$  and 1-inch rules can be furnished graduated 50ths and 100ths inch.)

Our Rule Holder is especially well suited to its work. It is four inches long, so gives good reach, and it will clamp thicknesses up to  $\frac{1}{16}$  inch. At one end it has two slots for holding the rule, one at 30, the other at 45 degrees, and slight turn of knurled nut at other end rigidly clamps the rule. This will hold the rule at either 30 or 45 degrees and at right angles to the holder or when sharply cocked to either side.

Leatherette case,  $2\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{4}$  inch, which contains Set No. 20S, is ideal for preventing these very small rules from being lost or misplaced and for protecting the rules and the holder.

Number		Price Each
20S	Set of Rules with Holder. In Leatherette Case. Includes rules of lengths: $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and 1-inch.....	\$3.00
2010	Rules Only. Lengths: $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and 1-inch. Always specify length as well as "No. 2010," as this stock number applies to each rule in the above Set. Price per Rule.....	.35
20	Holder Only, for above Rules .....	.75

Packing: One set in a box  
Weight: Set No. 20S, 2 ozs.





## Students Tool Set No. 1

### For Students, Apprentices and Mechanics

This Set contains only those tools that are indispensable at the outset to the student or beginner, and all put up in a compact folding case convenient to carry to and from classes or shop.

Every tool in this Set is a standard one, identically same as those listed in this Catalog and sold to fine mechanics for their regular work. Thus these Precision Tools may well become a part of the more complete kit or chest of tools which the mechanic will require in his work to follow.

These tools are nicely arranged and held in the Leather Case, which folds to size  $7\frac{1}{4} \times 5\frac{1}{4} \times 1$ -inch. Set complete with Case weighs  $1\frac{1}{4}$  pounds.

### Contents of Students Tool Set No. 1

#### One Each of the Following:

Stock Number		Described on Page
25C	6-inch Combination Square. (Blade with square and center heads).....	177
2110	6-inch Flexible Steel Rule.....	227
40	4-inch "Banner" Spring Divider.....	196
41	4-inch "Banner" Outside Spring Caliper.....	197
42	4-inch "Banner" Inside Spring Caliper.....	197
17	4-inch Firm Joint Hermaphrodite Caliper.....	200
71C	Center Punch.....	220
036	Center Gage.....	190

**No. 1 Students Tool Set, with Case.....** Price, per Set **\$8.75**

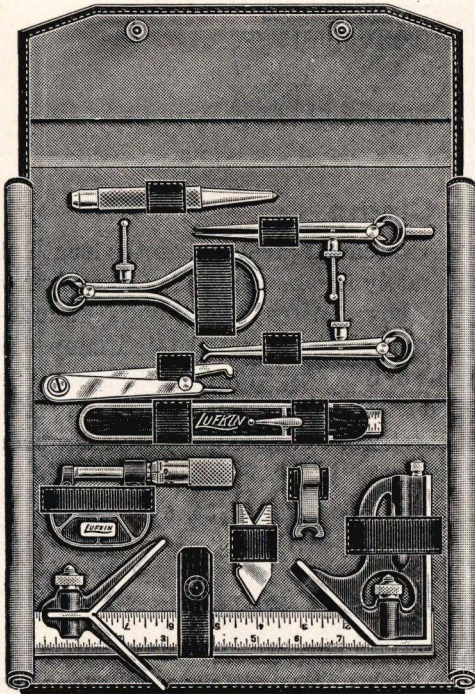
Packing: One set in a box

NOTE: More Complete Tool Set for Students—See page 223.



## Students Tool Set No. 2

For Students, Apprentices and Mechanics



Where a more complete set of tools is desired by the student or apprentice, this one is recommended. It differs from our Set No. 1 in these ways:

A Micrometer is included.

The Combination Square is larger.

Other tools are of different pattern.

This Set also is put up in compact folding case, convenient to carry to and from classes or shop.

In this Set also, each tool is a standard one, identical with those sold to fine mechanics for their regular work. Therefore these Precision Tools commonly are the nucleus of the complete set required in later work.

The Leather Case, in which these tools are nicely arranged and held, folds to  $10\frac{1}{4} \times 6 \times 1$ -inch. Set complete with Case weighs 2 pounds.

### Contents of Students Tool Set No. 2

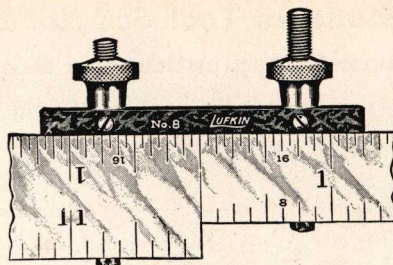
*One Each of the Following:*

Stock Number		Described on Page
1911	1-inch Micrometer. With enameled frame.....	157
25C	9-inch Combination Square. (Blade with square and center heads).....	177
2110R	6-inch Flexible Steel Rule.....	227
140	4-inch Toolmakers Spring Divider.....	194
141	4-inch Toolmakers Outside Spring Caliper.....	195
142	4-inch Toolmakers Inside Spring Caliper.....	195
A-17	4-inch Firm Joint Hermaphrodite Caliper.....	200
71D	Center Punch.....	220
36	Center Gage.....	190

**No. 2 Students Tool Set, with Case** ..... Price, per Set **\$19.50**

Packing: One set in a box





### Rule Clamp

A Rule Clamp is used when a measurement greater than the length of any single rule at hand must be accurately taken. Our Rule Clamp firmly holds two rules end to end as shown above. As the clamp bolts are independently adjustable (by means of knurled thumb nuts) this Clamp will join two rules whether they be of same or different width or thickness. The width capacity is  $1\frac{1}{4}$  inches. This device is in mottled blue finish. It is popular because the ordinary tool chest will not accommodate rules over 12 inches long. Packed one in a box.

No. 8 Rule Clamp . . . . . Price, Each \$0.60

## Graduations of Steel Rules

### English (inch) Measure

In connection with Steel Rules or Scales, shown on pages following, we detail below those combinations of markings which are known by Graduation Numbers.

We catalog also, on the following pages, Rules in various other English graduations, also Rules marked Metric only and Metric-English.

#### No. 1 Graduation

One Edge: 10-20-50-100ths.  
One Edge: 12-24-48ths.  
One Edge: 16-32-64ths.  
One Edge: 14-28ths.

#### No. 2 Graduation

One Edge: 10-20-50-100ths.  
One Edge: 12-24-48ths.  
One Edge: 16-32-64ths.  
One Edge: 8ths.

#### No. 3 Graduation

One Edge: 32nds.  
One Edge: 64ths.  
One Edge: 10ths.  
One Edge: 50ths.

#### No. 4 Graduation

One Edge: 64ths.  
One Edge: 32nds.  
One Edge: 16ths.  
One Edge: 8ths.

#### No. 7 Graduation

One Edge: 64ths.  
One Edge: 32nds.  
One Edge: 16ths.  
One Edge: 100ths.

#### No. 10 Graduation

One Edge: 32nds.  
One Edge: 64ths.

#### No. 11 Graduation

One Edge: 64ths.  
One Edge: 100ths.

#### No. 12 Graduation

One Edge: 50ths.  
One Edge: 100ths.

#### No. 16 Graduation

One Edge: 32nds.  
One Edge: 64ths.  
One Edge: 50ths.  
One Edge: 100ths.

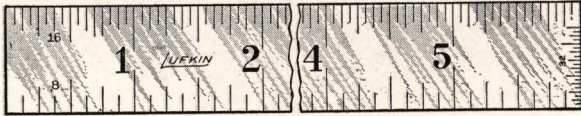








Showing "Readable" Graduations



Showing End Graduations

Semi-Flexible Steel Rules

Machine Divided. "Readable" Graduations.  
Approximate Thickness  $\frac{1}{50}$ th Inch

These also are spring tempered Rules, but semi-flexible. They are of same widths as our stiff (No. 2204R) Steel Rules, but of weight between those and our full flexible line. Markings and figures are dark and clear, easy to read, and these Rules are carefully ground and graduated. They are marked both edges of both sides.

Number

**2604R** No. 4 Graduation: 8ths, 16ths, 32nds, 64ths inch.  
Lengths: 2 to 12 inches.

"Readable" Graduations on all lengths: 64ths numbered every 8th division,  
32nds numbered every 4th division.

**2607R** No. 7 Graduation: 16ths, 32nds, 64ths, 100ths inch.  
Lengths: 2 to 12 inches.

"Readable" Graduations on all lengths: 64ths numbered every 8th division,  
32nds numbered every 4th division,  
100ths numbered every 10th division.

Length, inches	2	3	4	6	9	12
Price, each	\$0.45	\$0.60	\$0.75	\$0.90	\$1.35	\$1.65
Approx. width, inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Weight doz., lbs.	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1



Narrow Steel Rules

Machine Divided.  
Approximate Width  $\frac{3}{16}$ ths Inch, Thickness  $\frac{3}{64}$ ths Inch

Spring tempered stiff Rules, but  $\frac{3}{16}$  inch wide, hence easily inserted in small openings. These Rules are carefully ground and graduated and have clear, dark lines and figures. They are marked on one edge of each side. They are interchangeable with the blades of Depth Gages Nos. 509, 510 and 511, shown pages 172 to 174.

Number

**2310** Narrow Steel Rule. No. 10 Graduation: 32nds and 64ths inch.  
**2311** Narrow Steel Rule. No. 11 Graduation: 64ths and 100ths inch.

Length, inches	4	6	9	12
Price, each	\$0.75	\$0.90	\$1.35	\$1.65
Wt. doz., lbs.	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{5}{8}$

Packing: Six in a box





## Full Flexible Steel Rules

Machine Divided.

Approximate Thickness  $\frac{1}{64}$ th Inch.

Thin and very flexible, spring tempered Steel Rules. Carefully ground, and are graduated one side only, the lines and figures being dark and clear, easy to read. The Rules 12 inches and under in length are approximately  $\frac{1}{2}$  inch wide, the others  $\frac{3}{4}$  inch.

Number

**2110** No. 10 Graduation: 32nds and 64ths inch. Lengths: 1 to 48 inches.

**2111R** No. 11 Graduation: 64ths and 100ths inch. Lengths: 6 and 12 inch only.

"Readable" Graduations: 64ths numbered every 8th division, 100ths every 10th division.

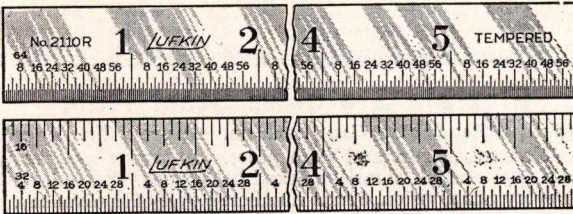
**2112** No. 12 Graduation: 50ths and 100ths inch. Lengths: 6 and 12 inch only.

**Length, inches** 1 2 3 4 6 9 12 18 24 36 48

**Price, each . . .** \$.30 \$.45 \$.60 \$.75 \$.90 \$1.35 \$1.65 \$2.60 \$3.25 \$7.00 \$10.00

**Wt. doz., lbs. . .**  $\frac{1}{16}$   $\frac{1}{16}$   $\frac{1}{8}$   $\frac{1}{8}$   $\frac{1}{4}$   $\frac{1}{2}$   $\frac{1}{2}$   $1\frac{1}{2}$   $2\frac{1}{4}$  3  $4\frac{1}{2}$

Packing: 12 inches and under, six in a box; others, one in a package



## Full Flexible Steel Rule

Machine Divided. "Readable" Graduations. Approx. Thickness  $\frac{1}{64}$ th Inch

Thin, very flexible, spring tempered, marked both sides. "Readable" Graduations, (64ths numbered every 8th division and 32nds every 4th). Carefully ground and graduated and has clear, dark lines and figures, easy to read. The graduations most used appear on lower edge, 64ths one side, 32nds other side. 16ths upper edge of 32nds side.

This Rule is approximately  $\frac{1}{2}$  inch wide and made in 6-inch length only.

Number

**2110R** 6-inch. Graduation: 16ths, 32nds, 64ths inch . . . . .

Price, Each

\$0.90

Packing: Six in a box. Wt. per doz.:  $\frac{1}{4}$  lb.

NOTE: Stainless Steel Rule, No. 2110R Pattern—See No. S-2110R, page 228.



## Rule Case with Pocket Clip

A Rule Case of genuine leather, with edges metal-bound, and having spring pocket clip or clasp. Suitable for all Flexible Steel Rules 6 inches long and  $\frac{1}{2}$  inch wide.

6-inch Rule Case with Clip . . . . . Price, each \$0.15





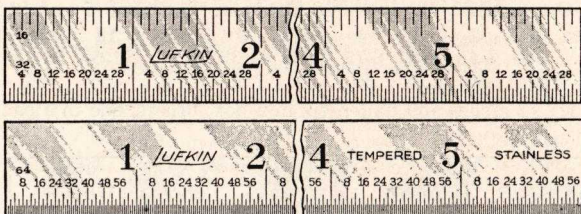
## Stainless Steel Rules

**Machine Divided. "Readable" Graduations. Approx. Thickness  $\frac{3}{64}$ ths Inch**

Genuine Stainless Steel, rust and stain proof. Otherwise same as No. 2204-R, i.e., spring tempered, carefully ground, clearly graduated on both edges of both sides. "Readable" Graduations (64ths numbered every 8th division, 32nds every 4th division).

Made only in 6 and 12-inch. Width: 6-inch,  $\frac{3}{4}$  inch; 12-inch, 1 inch.

Number	Graduation No. 4	Price, Each
S-2204R 6-inch Stainless Rule. 8ths, 16ths, 32nds, 64ths inch.....		\$1.35
S-2204R 12-inch Stainless Rule. 8ths, 16ths, 32nds, 64ths inch.....		2.65



## Flexible Stainless Steel Rule

**Machine Divided. "Readable" Graduations. Approx. Thickness  $\frac{1}{64}$ th Inch**

Genuine Stainless Steel, rust and stain proof. Otherwise practically same as No. 2110-R. Thin, spring tempered, clearly marked both sides. "Readable" Graduations (64ths numbered every 8th division, 32nds numbered every 4th division). Carries 64ths lower edge one side, other side 32nds on lower and 16ths on upper edge. Thus the two graduations most used fall on lower edge.

This Rule is approximately  $\frac{1}{2}$  inch wide and made in 6-inch length only.

Number	Graduation	Price, Each
S-2110R 6-inch Flexible Stainless Rule. 16ths, 32nds, 64ths inch.....		\$1.35



## Beveled Steel Rules, Spring Tempered

**Machine Divided. One Edge Beveled. Approximate Thickness  $\frac{3}{64}$ ths Inch**

Beveled edge of these Rules brings the fine graduation close to the work. They are carefully ground and graduated, lines and figures being dark and easy to read. Approximate width of the 6-inch is  $\frac{3}{4}$  inch, of the 12-inch, 1 inch.

Number	Length, inches	Price, each
2224 No. 4 Graduation: 8ths, 16ths, 32nds, 64ths inch. (64ths on the bevel.)	6 and 12-inch only.	
2227 No. 7 Graduation: 16ths, 32nds, 64ths, 100ths inch. (100ths on the bevel.)	6 and 12-inch only.	

Length, inches	6	12
Price, each	\$0.90	\$1.65

Packing: Six in a box





## Full Flexible Steel Rule

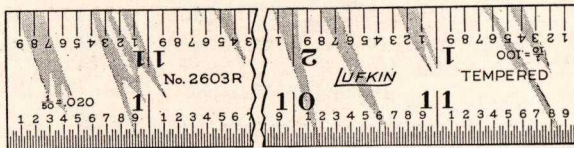
**Machine Divided. "Readable" Graduations. Approx. Thickness  $\frac{1}{64}$ th Inch**

Facilitates measurement where dimensions are in decimals, eliminating necessity of converting decimals into fractions. A flexible, spring tempered Rule, carefully ground and graduated, with clear, dark lines and figures, easy to read. Marked both edges of both sides, with "Readable" Graduations throughout (64ths numbered every 8th division, 32nds every 4th division, 10ths every division, and 50ths every 5th division).

This Rule is approximately  $\frac{1}{2}$  inch wide, and is made in 6-inch length only.

**No. 2103R 6-inch. No. 3 Graduation: 32nds, 64ths, 10ths, 50ths inch.**

"Readable" Graduations throughout.....Price, each \$0.90



## Semi-Flexible Steel Rule

**Machine Divided. "Readable" Graduations. Approx. Thickness  $\frac{1}{50}$ th Inch.**

Facilitates measurement where dimensions are in decimals, eliminating necessity of converting decimals into fractions. This is a spring tempered, semi-flexible Steel Rule carrying same graduations as the one above. It also has graduations "Readable" on all four edges. It is carefully ground and graduated, lines and figures are dark, clear and easy to read.

This Rule is approximately 1-inch wide, and is made in 12-inch length only.

**No. 2603R 12-inch. No. 3 Graduation: 32nds, 64ths, 10ths, 50ths inch.**

"Readable" Graduations throughout.....Price, each \$1.65



## "Allen" Improved Semi-Flexible Steel Rule

**Machine Divided. Approximate Thickness  $\frac{1}{50}$ th Inch.**

This Rule is unique in its marking and numbering. It will measure to 64ths inch, yet the closest graduations upon it are  $\frac{1}{32}$  inch apart, and all odd 64ths are lines  $\frac{1}{16}$  inch apart, and every one of these being numbered, it is the easiest of all Rules to read to 64ths. Very handy for inspectors and others who often check to a specified measurement.

One side is marked in the standard way, one edge 16ths, other edge 32nds inch, this taking care of all the even 64ths. Opposite side bears the odd 64ths only. Its one edge carries odd 64ths every fourth 64th commencing with 1, numbered 1, 5, 9, 13, etc., in each inch. Other edge bears the remaining odd 64ths, these being 3, 7, 11, 15, etc., and so numbered.

The "Allen" Rule is carefully ground and has machine divided, dark lines and figures, easy to read. It is  $\frac{3}{4}$  inch wide and made in 6-inch length only.

**No. 2608 6-inch "Allen" Steel Rule . . . Price, each \$0.90**

Packing: Six in a box





## Spring Tempered Steel Rules

**English-Metric. Machine Divided. Approximate Thickness  $\frac{3}{64}$ ths Inch.**

A Rule having wide range of graduations and marked both English and Metric. Has clear, dark lines and figures, easy to read, and is carefully ground and machine divided.

**No. 3227** Marked Both Sides.

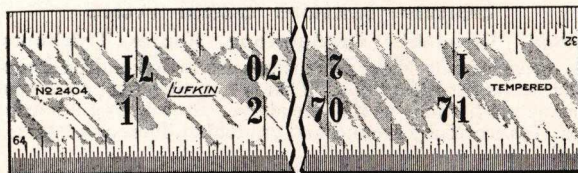
One side 16ths, 32nds, 64ths; 10ths, 20ths, 50ths, 100ths inch.

Other side, one edge millimeters; other edge  $\frac{1}{2}$  millimeters.

<b>Length, inches</b> .....	<b>4</b>	<b>6</b>	<b>9</b>	<b>12</b>
Price, each.....	\$0.75	\$0.90	\$1.35	\$1.65
Approx. width, inches.....	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Wt. per doz., lbs.....	$\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{2}$	2

Packing: Six in a box

NOTE: Rules marked Metric only and Metric-English—See page 232.



## Heavy Spring Tempered Steel Rules

**Without Hook.**

**With Hook.**

**Machine Divided. Approximate Thickness  $\frac{1}{10}$ th Inch, Width  $1\frac{1}{2}$  Inches.**

Wider, stiffer, and offered in lengths longer than our standard weight steel rules. Popular in factories and wherever 3 to 6-foot measurements must be precisely taken.

These Rules are marked both edges of both sides. They are carefully ground and graduated, and have clear, dark lines and prominent figures, easy to read.

Hook of H-2404 Rules is of hardened steel, and is of same pattern as illustration H-2204R appearing next page. It is quickly removed by giving eccentric stud a half turn, and the rule is then, for use, same as those without hook. Removed, the hook can be set to extend from the other edge of the rule.

**All Have No. 4 Graduation: 8ths, 16ths, 32nds, 64ths inch.**

### WITHOUT HOOK

No. 2404	36-inch.	Price, each	\$ 7.00
No. 2404	48-inch.	Price, each	10.00
No. 2404	60-inch.	Price, each	20.00
No. 2404	72-inch.	Price, each	24.00

### WITH REMOVABLE HOOK

No. H-2404	36-inch.	Price, each	\$ 8.00
No. H-2404	48-inch.	Price, each	11.00
No. H-2404	60-inch.	Price, each	21.00
No. H-2404	72-inch.	Price, each	25.00

Packing: One in a package

Weight each: 36-inch  $1\frac{3}{4}$  lbs.; 48-inch  $2\frac{1}{4}$  lbs.; 60-inch  $2\frac{3}{4}$  lbs.; 72-inch  $3\frac{1}{4}$  lbs.

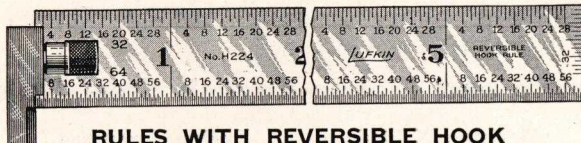


## Hook Rules

### Machine Divided.

### Spring Tempered Steel.

Steel Rules similar to those listed on other pages, but with Hook. Hooks are of hardened steel, sturdy and set securely. All Rules on this page are carefully ground and machine divided, having clear, dark markings, easy to read. On those under 18 inches long the zero of all graduations is at same end, so all measurements begin at inside of hook. "Readable" Graduation means 64ths numbered every 8th division, 32nds every 4th division. "End Graduation" means one end of both sides graduated to 32nds.



### RULES WITH REVERSIBLE HOOK

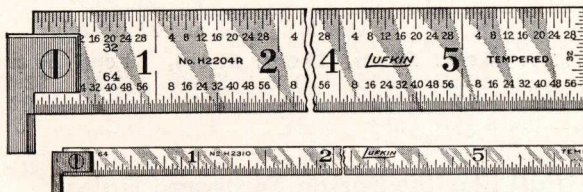
#### Approximate thickness $\frac{3}{64}$ ths inch

This Hook, without removing any parts, can be changed to any of the four graduations and read from zero. This is done very readily by hand, no tool necessary. Simply loosen thumb screw until slot in hook clears the Rule, turn hook and tighten thumb screw.

**No. H-224 No. 4 Graduation:** 8ths, 16ths, 32nds, 64ths inch.

With "Readable" and End Graduations.

Length, inches	6	9	12
Price, each	\$1.50	\$2.00	\$2.40
Approx. width rule, inches	$\frac{3}{4}$	$\frac{7}{8}$	1



### RULES WITH REMOVABLE HOOK

Hooks of these Rules are quickly removed by giving eccentric stud a half turn. The Rules are then, for use, same as those without hook. Removed, these Hooks can be reversed, i.e., on all lengths under 18 inches, will measure from zero on all graduations. The Narrow Pattern Rules are interchangeable with blade of our Depth Gage **H-511**, page 173.

### STANDARD PATTERN RULES WITH REMOVABLE HOOK

#### Approximate thickness $\frac{3}{64}$ ths inch

**No. H-2204R No. 4 Graduation:** 8ths, 16ths, 32nds, 64ths inch.

"Readable" Graduations on all lengths. End Graduations on 6 to 24-inch lengths.

Length, inches	6	9	12	18	24	36
Price, each	\$1.25	\$1.75	\$2.15	\$3.10	\$3.75	\$7.65
Approx. width, inches	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$

### NARROW PATTERN RULES WITH REMOVABLE HOOK

#### Approximate width $\frac{3}{16}$ ths inch, thickness $\frac{3}{64}$ ths inch

**No. H-2310 No. 10 Graduation:** 32nds and 64ths inch.

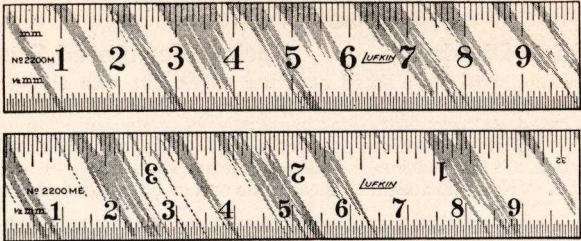
Length, inches	4	6	9	12
Price, each	\$1.00	\$1.20	\$1.65	\$2.00

Packing: 12 inches and under, three in a box; others, one in a package

NOTES: Heavy Steel Rules with Hook—See No. **H-2404**, page 230.

Hook Rules Marked Metric and English—Furnished at same prices as rules of corresponding lengths marked English only. Specify as: **H-2200M**, **H-2300M**, and **H-2200ME**, **H-2300ME**.





Metric and Metric-English Steel Rules

Machine Divided. Spring Tempered.

All Rules listed on this page are of high quality, carefully ground and graduated, and having clear, dark lines and figures, easy to read.

Stiff Spring Tempered Rules

Approximate thickness 1 millimeter (3/64ths inch)

No. 2200M	Marked Both Sides: Three edges in mm., one edge in 1/2 mm.						
No. 2200ME	Marked Both Sides: One side mm., and 64ths inch; One side 1/2 mm., and 32nds inch.						
Length	5 cm.	10 cm.	15 cm.	20 cm.	30 cm.	50 cm.	1 meter
Price, each	\$0.55	\$0.75	\$0.90	\$1.20	\$1.65	\$2.60	\$10.00
Approx. width in mm.	12	12	18	21	24	32	32
Wt. per doz., lbs.	1/4	1/2	3/4	1 1/2	2	5	10

Full Flexible Spring Tempered Rules

Approximate thickness 4/10ths mm. (1/64th inch)

No. 2100M	Marked One Side Only: Upper edge mm., lower edge 1/2 mm.					
No. 2100ME	Marked One Side Only: Upper edge 1/2 mm., lower edge 64ths inch.					
Length	5 cm.	10 cm.	15 cm.	20 cm.	30 cm.	50 cm.
Price, each	\$0.55	\$0.75	\$0.90	\$1.20	\$1.65	\$2.60
Approx. width in mm.	12	12	12	12	12	18
Wt. per doz., lbs.	1/8	1/4	1/4	3/8	1/2	2

Narrow Pattern Spring Tempered Rules

Approximate width 5 mm. (3/16ths inch); Thickness 1 mm. (3/64ths inch)

No. 2300M	Marked Both Sides: One edge, one side mm., other side 1/2 mm.				
No. 2300ME	Marked Both Sides: One edge, one side 1/2 mm., other side 64ths inch.				
Length	10 cm.	15 cm.	20 cm.	30 cm.	
Price, each	\$0.75	\$0.90	\$1.20	\$1.65	
Wt. per doz., lbs.	1/4	1/4	3/8	5/8	

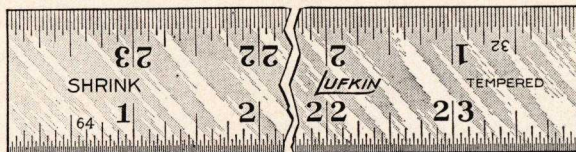
Packing: Rules 30 cm. and under.....Six in a box  
All other lengths.....One in a package

NOTE: English-Metric 4 to 12-Inch Rules—See No. 3227, page 230.



## Steel Shrink Rules

This page is confined to Spring Tempered Steel Shrink Rules. Graduations throughout these Rules allow for the shrinkage indicated. These Rules are extensively used by patternmakers, foundry workers and others. All are high grade, accurate, machine divided Rules, suitable alike for common and for close work. They are carefully ground and graduated, have clear, dark lines and figures, easy to read, and are most durable.



## STEEL SHRINK RULES

Machine Divided. Approximate Thickness  $\frac{3}{64}$ ths Inch.  
No. 4 Graduation: 8ths, 16ths, 32nds, 64ths Shrinkage Inch

Always Specify Length as Well as Stock Number

No.	Shrink Per Ft.	No.	Shrink Per Ft.	No.	Shrink Per Ft.
83A.....	$\frac{1}{16}$ inch	83F.....	$\frac{3}{16}$ inch	83L.....	$\frac{1}{2}$ inch
83B.....	$\frac{1}{12}$ inch	83G.....	$\frac{1}{4}$ inch	83R.....	$\frac{5}{32}$ inch
83C.....	$\frac{1}{10}$ inch	83H.....	$\frac{5}{16}$ inch	83S.....	$\frac{7}{32}$ inch
83D.....	$\frac{3}{32}$ inch	83J.....	$\frac{7}{16}$ inch	83T.....	$\frac{9}{32}$ inch
83E.....	$\frac{1}{8}$ inch	83K.....	$\frac{3}{8}$ inch	83W.....	$\frac{11}{32}$ inch
				83Y.....	$\frac{13}{32}$ inch

Length.....	6-inch	12-inch	24-inch
Price, each.....	\$1.00	\$2.10	\$4.25
Approx. width, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$
Weight, each.....	1 oz.	$2\frac{1}{2}$ ozs.	6 ozs.

Packing: 6 and 12-inch Rules, six in a box; 24-inch, one in a package



## FLEXIBLE STEEL SHRINK RULES

Machine Divided. Approximate Thickness  $\frac{1}{64}$ th Inch.  
No. 10 Graduation: 32nds and 64ths Shrinkage Inch

(Graduated one side only, lower edge 64ths, upper edge 32nds.)

No.	Shrink Per Ft.	Length	Wt., Each	Width	Price, Each
2183E	$\frac{1}{8}$ inch	6-inch only	1 oz.	$\frac{1}{2}$ inch	\$1.00
2183F	$\frac{3}{16}$ inch	6-inch only	1 oz.	$\frac{1}{2}$ inch	1.00

NOTES: Metric Shrink Rules:

No. 83M	30 cm.	Shrinkage of 1 mm to 100 mm.....	Each	\$2.10
No. 83MM	30 cm.	Shrinkage of 1 mm to 50 mm.....	Each	2.10

Shrink Blades for Combination Squares—See page 182.

Metal	Average Shrinkage of Castings	Metal	Shrinkage Per Foot
Cast Iron.....	$\frac{1}{8}$ inch	Aluminum.....	$\frac{3}{16}$ inch
Malleable Iron.....	$\frac{1}{8}$ inch	Copper.....	$\frac{3}{16}$ inch
Steel.....	$\frac{1}{4}$ inch	Lead.....	$\frac{5}{16}$ inch
Brass.....	$\frac{3}{16}$ inch	Zinc.....	$\frac{5}{16}$ inch





Figure 1

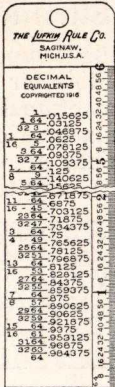


Figure 2

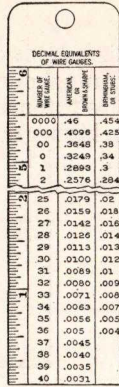


Figure 3

Mechanics Steel Reference Tables

These Tables are especially handy for machinists, toolmakers and diemakers, as they carry valuable information required in daily work. They are convenient also for anyone having occasion to refer to wire gages, decimal equivalents of common fractions, or tap and drill sizes.

Made of flexible spring steel, 1 1/4 inches wide, 6 3/4 inches long, and having hole at upper end. Machine divided, with clear dark figures and lines, easy to read. In addition to tables, both Nos. 97 1/2 and 98 carry on each side a 6-inch graduated scale.

No. 97 1/2 Reference Table. Marked Both Sides as Figures 1 and 2. (Carries tap and drill sizes and decimal equivalents of fractions, and 6-inch scales, as detailed below).....Price, each \$0.90

No. 98 Reference Table. Marked Both Sides as Figures 2 and 3. (Carries decimal equivalents of wire gages and fractions, and 6-inch scales, as detailed below).....Price, each \$0.90

Figure 1. Tables of U. S., A. S. M. E., S. A. E., and Briggs Pipe Standard machine screw tap and drill sizes, including fractional and numbered sizes. Also a 6-inch scale to 32nds, "Readable" Graduations.

Figure 2. Table of decimal equivalents of fractions in 64ths from 1/64th to 63/64ths. Also a 6-inch scale to 64ths, "Readable" Graduations.

Figure 3. Table of Decimal equivalents of wire gages. Also a 6-inch scale to 32nds, "Readable" Graduations.

Weight per doz.: 12 ozs. Packing: Six in a box

NOTE: Leather Cases for Nos. 97 1/2 and 98—Furnished at small extra charge.



The Decimeter Rule

A Key to the Metric System

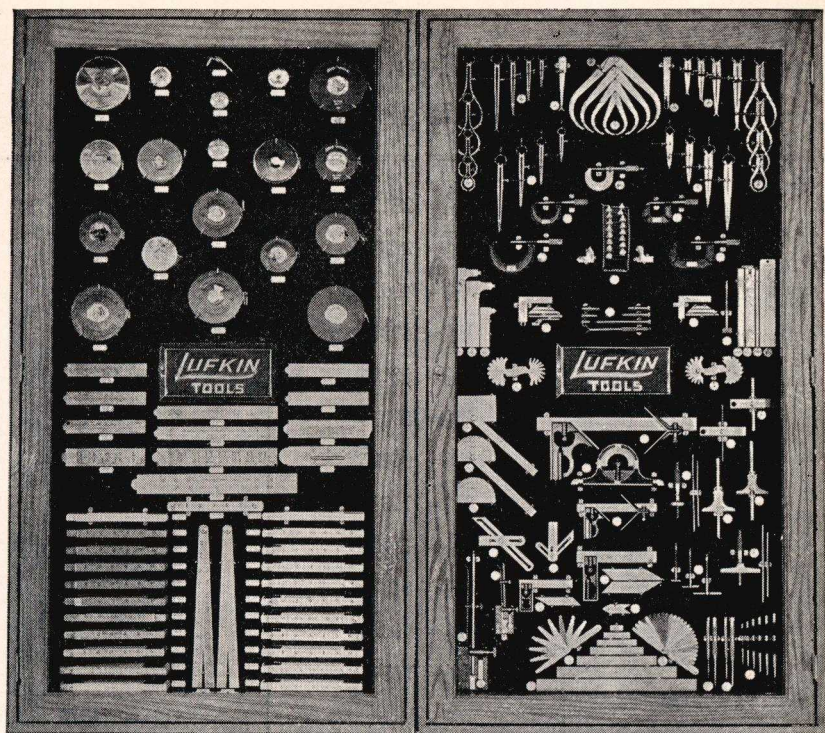
1 Decimeter Long. 1 Centimeter Wide. 1 Millimeter Thick.

This Rule gives a most comprehensive visual demonstration of metric sizes. It is of tempered steel, machine divided. It is marked one edge, one side, in centimeters and millimeters. It carries on both sides interesting facts regarding the metric system.

Furnished with Metal-Bound Leather Case

No. 99 Decimeter Rule. Length: 10 centimeters (1 decimeter).... Price, each \$0.50





## DISPLAY CASES AND PANELS of TAPES—RULES—PRECISION TOOLS

As an aid to our Trade we are pleased to mount our goods in Display Cases or on Panels. We supply such mounted assortments confined to Measuring Tapes, or Rules, or Precision Tools; we gladly also make up combination assortments of any two or all three of these lines.

We are prepared to build the cases or panels to fit the wall or other store space available. We also mount goods on fixtures sent us by Dealers.

The items to appear displayed may be selected by the Distributor to meet his requirements, or, if desired, we will make the selections. We nicely arrange and securely mount the items.

Cases can be furnished with lock and with hinged door fitted for glass, to keep the display in best condition.

**These Make Attractive Displays, Promoting Sales.**



## Decimal Equivalents of 8ths, 16ths, 32nds and 64ths of an inch

### 8ths

$$\frac{1}{8} = .125$$

$$\frac{1}{4} = .250$$

$$\frac{3}{8} = .375$$

$$\frac{1}{2} = .500$$

$$\frac{5}{8} = .625$$

$$\frac{3}{4} = .750$$

$$\frac{7}{8} = .875$$

### 16ths

$$\frac{1}{16} = .0625$$

$$\frac{3}{16} = .1875$$

$$\frac{5}{16} = .3125$$

$$\frac{7}{16} = .4375$$

$$\frac{9}{16} = .5625$$

$$\frac{11}{16} = .6875$$

$$\frac{13}{16} = .8125$$

$$\frac{15}{16} = .9375$$

### 32nds

$$\frac{1}{32} = .03125$$

$$\frac{3}{32} = .09375$$

$$\frac{5}{32} = .15625$$

$$\frac{7}{32} = .21875$$

$$\frac{9}{32} = .28125$$

$$\frac{11}{32} = .34375$$

$$\frac{13}{32} = .40625$$

$$\frac{15}{32} = .46875$$

$$\frac{17}{32} = .53125$$

$$\frac{19}{32} = .59375$$

$$\frac{21}{32} = .65625$$

$$\frac{23}{32} = .71875$$

$$\frac{25}{32} = .78125$$

$$\frac{27}{32} = .84375$$

$$\frac{29}{32} = .90625$$

$$\frac{31}{32} = .96875$$

### 64ths

$$\frac{1}{64} = .015625$$

$$\frac{3}{64} = .046875$$

$$\frac{5}{64} = .078125$$

$$\frac{7}{64} = .109375$$

$$\frac{9}{64} = .140625$$

$$\frac{11}{64} = .171875$$

$$\frac{13}{64} = .203125$$

$$\frac{15}{64} = .234375$$

$$\frac{17}{64} = .265625$$

$$\frac{19}{64} = .296875$$

$$\frac{21}{64} = .328125$$

$$\frac{23}{64} = .359375$$

$$\frac{25}{64} = .390625$$

$$\frac{27}{64} = .421875$$

$$\frac{29}{64} = .453125$$

$$\frac{31}{64} = .484375$$

$$\frac{33}{64} = .515625$$

$$\frac{35}{64} = .546875$$

$$\frac{37}{64} = .578125$$

$$\frac{39}{64} = .609375$$

$$\frac{41}{64} = .640625$$

$$\frac{43}{64} = .671875$$

$$\frac{45}{64} = .703125$$

$$\frac{47}{64} = .734375$$

$$\frac{49}{64} = .765625$$

$$\frac{51}{64} = .796875$$

$$\frac{53}{64} = .828125$$

$$\frac{55}{64} = .859375$$

$$\frac{57}{64} = .890625$$

$$\frac{59}{64} = .921875$$

$$\frac{61}{64} = .953125$$

$$\frac{63}{64} = .984375$$

# Decimal Equivalents of Millimeters

Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches
.1	.00394	4.4	.17322	8.7	.34251	13.	.51181
.2	.00787	4.5	.17716	8.8	.34645	13.1	.51574
.3	.01181	4.6	.18110	8.9	.35039	13.2	.51968
.4	.01575	4.7	.18503	9.	.35433	13.3	.52362
.5	.01968	4.8	.18897	9.1	.35826	13.4	.52755
.6	.02362	4.9	.19291	9.2	.36220	13.5	.53149
.7	.02756	5.	.19685	9.3	.36614	13.6	.53543
.8	.03149	5.1	.20078	9.4	.37007	13.7	.53936
.9	.03543	5.2	.20472	9.5	.37401	13.8	.54330
1.	.03937	5.3	.20866	9.6	.37795	13.9	.54724
1.1	.04330	5.4	.21259	9.7	.38188	14.	.55118
1.2	.04724	5.5	.21653	9.8	.38582	14.1	.55511
1.3	.05118	5.6	.22047	9.9	.38976	14.2	.55905
1.4	.05512	5.7	.22440	10.	.39370	14.3	.56299
1.5	.05905	5.8	.22834	10.1	.39763	14.4	.56692
1.6	.06299	5.9	.23228	10.2	.40157	14.5	.57086
1.7	.06692	6.	.23622	10.3	.40551	14.6	.57480
1.8	.07086	6.1	.24015	10.4	.40944	14.7	.57873
1.9	.07480	6.2	.24409	10.5	.41338	14.8	.58267
2.	.07874	6.3	.24803	10.6	.41732	14.9	.58661
2.1	.08267	6.4	.25196	10.7	.42125	15.	.59055
2.2	.08661	6.5	.25590	10.8	.42519	15.5	.61023
2.3	.09055	6.6	.25984	10.9	.42913	16.	.62992
2.4	.09448	6.7	.26377	11.	.43307	16.5	.64960
2.5	.09842	6.8	.26771	11.1	.43700	17.	.66929
2.6	.10236	6.9	.27165	11.2	.44094	17.5	.68897
2.7	.10629	7.	.27559	11.3	.44488	18.	.70866
2.8	.11023	7.1	.27952	11.4	.44881	18.5	.72834
2.9	.11417	7.2	.28346	11.5	.45275	19.	.74803
3.	.11811	7.3	.28740	11.6	.45669	19.5	.76771
3.1	.12204	7.4	.29133	11.7	.46062	20.	.78740
3.2	.12598	7.5	.29527	11.8	.46456	20.5	.80708
3.3	.12992	7.6	.29921	11.9	.46850	21.	.82677
3.4	.13385	7.7	.30314	12.	.47244	21.5	.84645
3.5	.13779	7.8	.30708	12.1	.47637	22.	.86614
3.6	.14173	7.9	.31102	12.2	.48031	22.5	.88582
3.7	.14566	8.	.31496	12.3	.48425	23.	.90551
3.8	.14960	8.1	.31889	12.4	.48818	23.5	.92519
3.9	.15354	8.2	.32283	12.5	.49212	24.	.94488
4.	.15748	8.3	.32677	12.6	.49606	24.5	.96456
4.1	.16141	8.4	.33070	12.7	.49999	25.	.98425
4.2	.16535	8.5	.33464	12.8	.50393	25.5	1.00393
4.3	.16929	8.6	.33858	12.9	.50787	26.	1.02362



Decimal Equivalents of Number Size Drills

No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches
1	0.2280	21	0.1590	41	0.0960	61	0.0390
2	0.2210	22	0.1570	42	0.0935	62	0.0380
3	0.2130	23	0.1540	43	0.0890	63	0.0370
4	0.2090	24	0.1520	44	0.0860	64	0.0360
5	0.2055	25	0.1495	45	0.0820	65	0.0350
6	0.2040	26	0.1470	46	0.0810	66	0.0330
7	0.2010	27	0.1440	47	0.0785	67	0.0320
8	0.1990	28	0.1405	48	0.0760	68	0.0310
9	0.1960	29	0.1360	49	0.0730	69	0.0292
10	0.1935	30	0.1285	50	0.0700	70	0.0280
11	0.1910	31	0.1200	51	0.0670	71	0.0260
12	0.1890	32	0.1160	52	0.0635	72	0.0250
13	0.1850	33	0.1130	53	0.0595	73	0.0240
14	0.1820	34	0.1110	54	0.0550	74	0.0225
15	0.1800	35	0.1100	55	0.0520	75	0.0210
16	0.1770	36	0.1065	56	0.0465	76	0.0200
17	0.1730	37	0.1040	57	0.0430	77	0.0180
18	0.1695	38	0.1015	58	0.0420	78	0.0160
19	0.1660	39	0.0995	59	0.0410	79	0.0145
20	0.1610	40	0.0980	60	0.0400	80	0.0135

Decimal Equivalents of Letter Size Drills

Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches	Letter	Size of Drill in Inches
Z	0.413	S	0.348	L	0.290	E	0.250
Y	0.404	R	0.339	K	0.281	D	0.246
X	0.397	Q	0.332	J	0.277	C	0.242
W	0.386	P	0.323	I	0.272	B	0.238
V	0.377	O	0.316	H	0.266	A	0.234
U	0.368	N	0.302	G	0.261	.....	.....
T	0.358	M	0.295	F	0.257	.....	.....

## Useful Rules

### TO FIND CIRCUMFERENCE—

Multiply diameter by.....3.1416  
Or divide diameter by.....0.3183

### TO FIND DIAMETER—

Multiply circumference by.....0.3183  
Or divide circumference by.....3.1416

### TO FIND RADIUS—

Multiply circumference by.....0.15915  
Or divide circumference by.....6.28318

### TO FIND SIDE OF AN INSCRIBED SQUARE—

Multiply diameter by.....0.7071  
Or multiply circumference by.....0.2251  
Or divide circumference by.....4.4428

### TO FIND SIDE OF AN EQUAL SQUARE—

Multiply diameter by.....0.8862  
Or divide diameter by.....1.1284  
Or multiply circumference by.....0.2821  
Or divide circumference by.....3.545

### SQUARE—

A side multiplied by 1.4142 equals diameter of its circumscribing circle.  
A side multiplied by 4.443 equals circumference of its circumscribing circle.  
A side multiplied by 1.128 equals diameter of an equal circle.  
A side multiplied by 3.547 equals circumference of an equal circle.

### TO FIND THE AREA OF A CIRCLE—

Multiply circumference by one-quarter of the diameter.  
Or multiply the square of diameter by.....0.7854  
Or multiply the square of circumference by......07958  
Or multiply the square of  $\frac{1}{2}$  diameter by.....3.1416

### TO FIND THE SURFACE OF A SPHERE OR GLOBE—

Multiply the diameter by the circumference.  
Or multiply the square of diameter by.....3.1416  
Or multiply four times the square of radius by.....3.1416

### TO FIND THE CUBIC INCHES (VOLUME) IN A SPHERE OR GLOBE—

Multiply the cube of the diameter by .5236.

### TO FIND THE WEIGHT OF BRASS AND COPPER SHEETS, RODS AND BARS—

Ascertain the number of cubic inches in piece and multiply same by weight per cubic inch.

Aluminum	.0924	Copper	.3184
Brass	.2960	Steel	.2816

Or multiply the length by the breadth (in feet) and product by weight in pounds per square foot.



## Surveyors or Land Measure

- 1 Link = 7.92 inches.
- 1 Rod (or Pole) = 25 links =  $16\frac{1}{2}$  feet.
- 1 Chain = 100 links = 4 rods = 66 feet.
- 1 Furlong = 40 rods = 10 chains =  $\frac{1}{8}$  mile.
- 1 Mile = 320 rods = 5,280 feet.
- 1 Acre = 160 square rods = 43,560 square feet.
- 1 Square Mile = 640 acres.

## The Metric System

### MEASURES OF LENGTH

- |                      |                |     |
|----------------------|----------------|-----|
| 10 millimeters (mm.) | = 1 centimeter | cm. |
| 10 centimeters       | = 1 decimeter  | dm. |
| 10 decimeters        | = 1 meter      | m.  |
| 10 meters            | = 1 dekameter  | Dm. |
| 10 dekameters        | = 1 hektometer | Hm. |
| 10 hektometers       | = 1 kilometer  | Km. |
- 
- |                             |                                    |                       |
|-----------------------------|------------------------------------|-----------------------|
| 1 meter = {                 | 39.37 inches.                      |                       |
|                             | 3.28083 feet.                      |                       |
|                             | 1.0936 yards.                      |                       |
| 1 centimeter = .3937 inch.  |                                    | 1 foot = .3048 meter. |
| 1 millimeter = {            | .03937 inch, or                    | 1 inch = {            |
|                             | approximately $\frac{1}{25}$ inch. | 2.54 centimeters.     |
| 1 kilometer = 0.62137 mile. |                                    | 25.4 millimeters.     |

### MEASURES OF SURFACE

- |   |                     |                                     |
|---|---------------------|-------------------------------------|
| 1 square meter = {                      | 10.764 square feet. | 1 square yard = .836 square meter.  |
|   | 1.196 square yards. | 1 square foot = .0929 square meter. |
| 1 square centimeter = .155 square inch. |                     | 1 square inch = {                   |
| 1 square millimeter = .00155 sq. inch.  |                     | 6.452 sq. centimeters.              |
|   |                     | 645.2 sq. millimeters.              |

### MEASURES OF VOLUME AND CAPACITY

- |                                       |                                   |   |
|---------------------------------------|-----------------------------------|---|
| 1 cubic meter = {                     | 35.314 cubic feet.                | 1 cubic yard = .7645 cubic meter.       |
|                                       | 1.308 cubic yards.                | 1 cubic foot = {                        |
|                                       | 264.2 gallons (231 cubic inches). | .02832 cubic meter.                     |
| 1 cubic decimeter = {                 | 61.023 cubic in.                  | 28.317 cubic decimeters.                |
|                                       | .0353 cubic feet.                 | 28.317 liters.                          |
| 1 cubic centimeter = .061 cubic inch. |                                   |   |
| 1 liter = {                           | 1 cubic decimeter.                | 1 cubic in. = 16.393 cubic centimeters. |
|                                       | 61.023 cubic inches.              | 1 gallon (British) = 4.543 liters.      |
|                                       | .0353 cubic foot.                 | 1 gallon (U. S.) = 3.785 liters.        |
|                                       | 1.0567 quarts (U. S.).            |   |
|                                       | .2642 gallon (U. S.).             |   |
|                                       | 2.202 lbs. of water at 62° F.     |   |

### MEASURES OF WEIGHT

- |                             |                                    |
|-----------------------------|------------------------------------|
| 1 gram = 15.432 grains.     | 1 grain = .0648 gram.              |
| 1 kilogram = 2.2046 pounds. | 1 ounce avoirdupois = 28.35 grams. |
|                             | 1 pound = .4536 kilogram.          |
| 1 metric ton = {            | .9842 ton of 2240 lbs.             |
|                             | 19.68 cwt.                         |
|                             | 2204.6 lbs.                        |
|                             | 1 ton of 2240 lbs. = {             |
|                             | 1.016 metric ton.                  |
|                             | 1016 kilograms.                    |

## Miscellaneous

- 1 kilogram per meter = .6720 pounds per foot.
- 1 gram per square millimeter = 1.422 pounds per square inch.
- 1 kilogram per square meter = 0.2084 pounds per square foot.
- 1 kilogram per cubic meter = .0624 pounds per cubic foot.
- 1 degree centigrade = 1.8 degrees Fahrenheit.
- 1 pound per foot = 1.488 kilograms per meter.
- 1 pound per square foot = 4.882 kilograms per square meter.
- 1 pound per cubic foot = 16.02 kilograms per cubic meter.
- 1 degree Fahrenheit = .5556 degrees centigrade.
- 1 Calorie (French Thermal Unit) = 3.968 B. T. U. (British Thermal Unit).
- 1 Horse Power = {
- 
- 33,000 foot pounds per minute.
- 746 Watts.
- 1 Watt (Unit of Electrical Power) = {
- 
- .00134 Horse Power.
- 44.22 foot pounds per minute.
- 1000 Watts.
- 1 Kilowatt = {
- 
- 1.34 Horse Power.
- 44,220 foot pounds per minute.

## Sizes of Tap Drills For Machine Screw Taps

### A. S. M. E. Standard

Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.
0-80	56	5-44	37	10-24	25	20-16	G
1-56	54	6-32	36	10-28	23	20-18	$17\frac{1}{64}$
1-64	53	6-36	34	10-30	22	20-20	I
1-72	53	6-40	33	10-32	21	22-16	$9\frac{3}{32}$
2-56	50	7-30	31	12-24	16	22-18	L
2-64	50	7-32	31	12-28	14	24-16	$5\frac{1}{16}$
3-48	47	7-36	$1\frac{1}{8}$	12-32	13	24-18	O
3-56	45	8-30	30	14-20	10	26-14	$21\frac{1}{64}$
4-32	45	8-32	29	14-24	7	26-16	R
4-36	44	8-36	29	16-18	3	28-14	T
4-40	43	8-40	28	16-20	$7\frac{1}{32}$	28-16	$2\frac{3}{64}$
4-48	42	9-24	29	16-22	2	30-14	V
5-36	40	9-30	27	18-18	B	30-16	$25\frac{1}{64}$
5-40	38	9-32	26	18-20	D		

### United States Standard

Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.
$1\frac{1}{16}$ -64	56	$7\frac{1}{16}$ -14	U	$1\frac{3}{16}$ -10	$2\frac{3}{32}$	$1\frac{3}{8}$ -6	$17\frac{1}{32}$
$1\frac{1}{8}$ -40	38	$1\frac{1}{2}$ -13	$27\frac{1}{64}$	$7\frac{7}{8}$ -9	$49\frac{1}{64}$	$1\frac{1}{2}$ -6	$11\frac{1}{32}$
$3\frac{1}{16}$ -32	22	$9\frac{1}{16}$ -12	$31\frac{1}{64}$	$1\frac{5}{16}$ -9	$53\frac{1}{64}$	$1\frac{5}{8}$ -5 $\frac{1}{2}$	$129\frac{1}{64}$
$1\frac{1}{4}$ -20	7	$5\frac{5}{8}$ -11	$17\frac{1}{32}$	1-8	$7\frac{7}{8}$	$1\frac{3}{4}$ -5	$19\frac{1}{16}$
$5\frac{1}{16}$ -18	F	$11\frac{1}{16}$ -11	$19\frac{1}{32}$	$1\frac{1}{8}$ -7	$63\frac{1}{64}$	$1\frac{7}{8}$ -5	$111\frac{1}{16}$
$3\frac{3}{8}$ -16	$5\frac{1}{16}$	$3\frac{1}{4}$ -10	$21\frac{1}{32}$	$1\frac{1}{4}$ -7	$1\frac{1}{64}$	2-4 $\frac{1}{2}$	$125\frac{1}{32}$

### S. A. E. Standard

Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.
$1\frac{1}{4}$ -28	3	$1\frac{1}{2}$ -20	$29\frac{1}{64}$	$3\frac{1}{4}$ -16	$11\frac{1}{16}$	$11\frac{1}{4}$ -12	$111\frac{1}{64}$
$5\frac{1}{16}$ -24	I	$9\frac{1}{16}$ -18	$33\frac{1}{64}$	$7\frac{7}{8}$ -14	$13\frac{1}{16}$	$1\frac{3}{8}$ -12	$119\frac{1}{64}$
$3\frac{3}{8}$ -24	Q	$5\frac{5}{8}$ -18	$37\frac{1}{64}$	1-14	$15\frac{1}{16}$	$1\frac{1}{2}$ -12	$127\frac{1}{64}$
$7\frac{1}{16}$ -20	$25\frac{1}{64}$	$11\frac{1}{16}$ -16	$5\frac{5}{8}$	$1\frac{1}{8}$ -12	$1\frac{3}{64}$		

### Briggs Pipe Standard

Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.	Size of Tap, No.	Size of Drill, No.
$1\frac{1}{8}$ -27	R	$1\frac{1}{2}$ -14	$23\frac{1}{32}$	$11\frac{1}{4}$ -11 $\frac{1}{2}$	$11\frac{1}{2}$	2 $\frac{1}{2}$ -8	$25\frac{1}{8}$
$1\frac{1}{4}$ -18	$7\frac{1}{16}$	$3\frac{1}{4}$ -14	$59\frac{1}{64}$	$11\frac{1}{2}$ -11 $\frac{1}{2}$	$147\frac{1}{64}$	3-8	$31\frac{1}{4}$
$3\frac{3}{8}$ -18	$37\frac{1}{64}$	1-11 $\frac{1}{2}$	$15\frac{1}{32}$	2-11 $\frac{1}{2}$	$27\frac{1}{32}$		



## Different Standards for Wire Gages in Use in the United States

Dimensions of Sizes in Decimal Parts of an Inch

Number of Wire Gage	Ameri- can or B. & S.	Birm- ing- ham or Stubs' Iron Wire	Wash- burn & Moen, Wor- cester, Mass.	W. & M. Steel Music Wire	New Ameri- can S. & W. Co.'s Music Wire Gage	Im- perial Wire Gage	Stubs' Steel Wire	U. S. Standard Gage for Sheet and Plate Iron and Steel	Number of Wire Gage
00000000				.0083					00000000
00000000				.0087					00000000
00000000				.0095	.004	.464		.46875	00000000
000000				.010	.005	.432		.4375	000000
0000	.460	.454	.3938	.011	.006	.400		.40625	0000
000	.40964	.425	.3625	.012	.007	.372		.375	000
00	.3648	.380	.3310	.0133	.008	.348		.34375	00
0	.32486	.340	.3065	.0144	.009	.324		.3125	0
1	.2893	.300	.2830	.0156	.010	.300	.227	.28125	1
2	.25763	.284	.2625	.0166	.011	.276	.219	.265625	2
3	.22942	.259	.2437	.0178	.012	.252	.212	.250	3
4	.20431	.238	.2253	.0188	.013	.232	.207	.234375	4
5	.18194	.220	.2070	.0202	.014	.212	.204	.21875	5
6	.16202	.203	.1920	.0215	.016	.192	.201	.203125	6
7	.14428	.180	.1770	.023	.018	.176	.199	.1875	7
8	.12849	.165	.1620	.0243	.020	.160	.197	.171875	8
9	.11443	.148	.1483	.0256	.022	.144	.194	.15625	9
10	.10189	.134	.1350	.027	.024	.128	.191	.140625	10
11	.090742	.120	.1205	.0284	.026	.116	.188	.125	11
12	.080808	.109	.1055	.0296	.029	.104	.185	.109375	12
13	.071961	.095	.0915	.0314	.031	.092	.182	.09375	13
14	.064084	.083	.0800	.0326	.033	.080	.180	.078125	14
15	.057068	.072	.0720	.0345	.035	.072	.178	.0703125	15
16	.05082	.065	.0625	.036	.037	.064	.175	.0625	16
17	.045257	.058	.0540	.0377	.039	.056	.172	.05625	17
18	.040303	.049	.0475	.0395	.041	.048	.168	.050	18
19	.03589	.042	.0410	.0414	.043	.040	.164	.04375	19
20	.031961	.035	.0348	.0434	.045	.036	.161	.0375	20
21	.028462	.032	.03175	.046	.047	.032	.157	.034375	21
22	.025347	.028	.0286	.0483	.049	.028	.155	.03125	22
23	.022571	.025	.0258	.051	.051	.024	.153	.028125	23
24	.0201	.022	.0230	.055	.055	.022	.151	.025	24
25	.0179	.020	.0204	.0586	.059	.020	.148	.021875	25
26	.01594	.018	.0181	.0626	.063	.018	.146	.01875	26
27	.014195	.016	.0173	.0658	.067	.0164	.143	.0171875	27
28	.012641	.014	.0162	.072	.071	.0149	.139	.015625	28
29	.011257	.013	.0150	.076	.075	.0136	.134	.0140625	29
30	.010025	.012	.0140	.080	.080	.0124	.127	.0125	30
31	.008928	.010	.0132		.085	.0116	.120	.0109375	31
32	.00795	.009	.0128		.090	.0108	.115	.01015625	32
33	.00708	.008	.0118		.095	.0100	.112	.009375	33
34	.006304	.007	.0104			.0092	.110	.00859375	34
35	.005614	.005	.0095			.0084	.108	.0078125	35
36	.005	.004	.0090			.0076	.106	.00703125	36
37	.004453					.0068	.103	.006640625	37
38	.003965					.0060	.101	.00625	38
39	.003531					.0052	.099		39
40	.003144					.0048	.097		40



Table of Pitch Diameters for U. S. Standard Form of Screw Threads

Caliper Reading or Pitch Diameter for U. S. Threads =  $D - \frac{.6495}{N}$

Diam., Inches	Threads Per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread	Diam., Inches	Threads Per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread
D	N	$D - \frac{.6495}{N}$	$\frac{.6495}{N}$	D	N	$D - \frac{.6495}{N}$	$\frac{.6495}{N}$
NOTE.—As there is no standard of diameter for the finer pitches this column is left blank.	64		.0101	$\frac{1}{4}$	20	.2175	.0325
	62		.0105	$\frac{5}{16}$	18	.2764	.0361
	60		.0108	$\frac{3}{8}$	16	.3344	.0406
	58		.0112	$\frac{7}{16}$	14	.3911	.0464
	56		.0116	$\frac{1}{2}$	13	.4501	.0499
	54		.0120	$\frac{9}{16}$	12	.5084	.0541
	52		.0125	$\frac{5}{8}$	11	.5660	.0590
	50		.0130	$\frac{3}{4}$	10	.6851	.0649
	48		.0135	$\frac{7}{8}$	9	.8029	.0721
	46		.0141	1	8	.9188	.0812
	44		.0148	$1\frac{1}{8}$	7	1.0322	.0928
	42		.0155	$1\frac{1}{4}$	7	1.1572	.0928
	40		.0162	$1\frac{3}{8}$	6	1.2668	.1082
	38		.0171	$1\frac{1}{2}$	6	1.3918	.1082
	36		.0180	$1\frac{3}{4}$	5 1/2	1.5070	.1180
	34		.0191	$1\frac{7}{8}$	5	1.6201	.1299
	32		.0203	2	5	1.7451	.1299
	30		.0217	2 1/2	4 1/2	1.8557	.1443
	28		.0232	3	4	2.3376	.1624
	26		.0250	3 1/2	3 1/2	2.8145	.1855
	24		.0271	4	3 1/4	3.3002	.1998
	22		.0295		3	3.7835	.2165

Table of Pitch Diameters for S. A. E. Standard Form of Screw Threads

Caliper Reading or Pitch Diameter for S. A. E. Threads =  $D - \frac{.6495}{N}$

Diam., Inches	Threads Per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread	Diam., Inches	Threads Per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread
D	N	$D - \frac{.6495}{N}$	$\frac{.6495}{N}$	D	N	$D - \frac{.6495}{N}$	$\frac{.6495}{N}$
$\frac{1}{4}$	28	.2268	.0232	$\frac{3}{4}$	16	.7094	.0406
$\frac{5}{16}$	24	.2854	.0271	$\frac{7}{8}$	14	.8286	.0464
$\frac{3}{8}$	24	.3479	.0271	1	14	.9536	.0464
$\frac{7}{16}$	20	.4050	.0324	$1\frac{1}{8}$	12	1.0709	.0541
$\frac{1}{2}$	20	.4675	.0324	$1\frac{1}{4}$	12	1.1959	.0541
$\frac{9}{16}$	18	.5265	.0360	$1\frac{3}{8}$	12	1.3209	.0541
$\frac{5}{8}$	18	.5890	.0360	$1\frac{1}{2}$	12	1.4459	.0541
$1\frac{1}{16}$	16	.6469	.0406				

Table of Pitch Diameters for A. S. M. E. Standard Form of Screw Threads

Caliper Reading or Pitch Diameter for A. S. M. E. Threads =  $D - \frac{.6495}{N}$

No.	Basic and Max. Outside Diam.	Threads per Inch	Caliper Reading or Max. Pitch Diam.	Single Depth of Thread	No.	Basic and Max. Outside Diam.	Threads per Inch	Caliper Reading or Max. Pitch Diam.	Single Depth of Thread
	D	N	$D - \frac{.6495}{N}$	$\frac{.6495}{N}$		D	N	$D - \frac{.6495}{N}$	$\frac{.6495}{N}$
0	.060	80	.0519	.0081	12	.216	28	.1928	.0232
1	.073	72	.0640	.0090	14	.242	24	.2149	.0271
2	.086	64	.0759	.0101	16	.268	22	.2385	.0295
3	.099	56	.0874	.0116	18	.294	20	.2615	.0325
4	.112	48	.0985	.0135	20	.320	20	.2875	.0325
5	.125	44	.1102	.0148	22	.346	18	.3099	.0361
6	.138	40	.1218	.0162	24	.372	16	.3314	.0406
7	.151	36	.1330	.0180	26	.398	16	.3574	.0406
8	.164	36	.1460	.0180	28	.424	14	.3776	.0464
9	.177	32	.1567	.0203	30	.450	14	.4036	.0464
10	.190	30	.1684	.0217					



## Table of Pitch Diameters For "Sharp V" Standard Form of Screw Threads

Caliper Reading or Pitch Diameter for "Sharp V" Threads = $D - \frac{.866}{N}$							
Diam., Inches	Threads per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread	Diam., Inches *	Threads per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread
D	N	$D - \frac{.866}{N}$	$\frac{.866}{N}$	D	N	$D - \frac{.866}{N}$	$\frac{.866}{N}$
NOTE.—As there is no standard of diameter for the finer pitches this column is left blank.	64	.....	.0135	$\frac{1}{4}$	24	.2139	.0361
	62	.....	.0140	$\frac{1}{4}$	20	.2067	.0433
	60	.....	.0144	$\frac{5}{16}$	20	.2692	.0433
	58	.....	.0149	$\frac{5}{16}$	18	.2644	.0481
	56	.....	.0155	$\frac{5}{16}$	18	.3269	.0481
	54	.....	.0161	$\frac{3}{8}$	16	.3209	.0541
	52	.....	.0167	$\frac{3}{8}$	16	.3834	.0541
	50	.....	.0173	$\frac{7}{16}$	14	.3756	.0619
	48	.....	.0180	$\frac{7}{16}$	14	.4381	.0619
	46	.....	.0188	$\frac{1}{2}$	13	.4334	.0666
	44	.....	.0197	$\frac{1}{2}$	12	.4278	.0722
	42	.....	.0206	$\frac{9}{16}$	14	.5006	.0619
	40	.....	.0217	$\frac{9}{16}$	12	.4903	.0722
	38	.....	.0228	$\frac{5}{8}$	11	.5463	.0787
	36	.....	.0241	$\frac{5}{8}$	10	.5384	.0866
	34	.....	.0255	$\frac{11}{16}$	10	.6009	.0866
	32	.....	.0271	$\frac{3}{4}$	10	.6634	.0866
	30	.....	.0289	$\frac{7}{8}$	9	.7788	.0962
	28	.....	.0309	1	8	.8918	.1082
	26	.....	.0333	$1 \frac{1}{8}$	8	1.0168	.1082
	.....	.....	.....	$1 \frac{1}{4}$	7	1.1263	.1237
	.....	.....	.....	$1 \frac{1}{2}$	6	1.3557	.1443

\*These figures give the outside diameter for screws with threads cut theoretically sharp. As it is not practical to make these threads sharp, the outside diameter will measure less than the figures given, the pitch diameter remaining the same.

## Table of Pitch Diameters For Whitworth Standard of Screw Threads

Caliper Reading or Pitch Diameter for Whitworth Threads = $D - \frac{.640}{N}$							
Diam., Inches	Threads per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread	Diam., Inches	Threads per Inch	Caliper Reading or Pitch Diam.	Single Depth of Thread
D	N	$D - \frac{.640}{N}$	$\frac{.640}{N}$	D	N	$D - \frac{.640}{N}$	$\frac{.640}{N}$
.....	48	.....	.0133	$\frac{1}{2}$	12	.4467	.0533
.....	46	.....	.0139	$\frac{9}{16}$	12	.5092	.0533
.....	44	.....	.0146	$\frac{5}{8}$	11	.5668	.0582
.....	42	.....	.0152	$\frac{11}{16}$	11	.6293	.0582
.....	40	.....	.0160	$\frac{3}{4}$	10	.6860	.0640
.....	38	.....	.0168	$\frac{13}{16}$	10	.7485	.0640
.....	36	.....	.0178	$\frac{7}{8}$	9	.8039	.0711
.....	34	.....	.0188	$\frac{15}{16}$	9	.8664	.0711
.....	32	.....	.0200	1	8	.9200	.0800
.....	30	.....	.0213	$1 \frac{1}{8}$	7	1.0336	.0914
.....	28	.....	.0229	$1 \frac{1}{4}$	7	1.1586	.0914
.....	26	.....	.0246	$1 \frac{3}{8}$	6	1.2684	.1066
.....	24	.....	.0267	$1 \frac{1}{2}$	6	1.3934	.1066
.....	22	.....	.0291	$1 \frac{3}{4}$	5	1.4970	.1280
$\frac{1}{4}$	20	.2180	.0320	$1 \frac{3}{4}$	5	1.6220	.1280
$\frac{5}{16}$	18	.2769	.0355	$1 \frac{7}{8}$	$4 \frac{1}{2}$	1.7328	.1422
$\frac{3}{8}$	16	.3350	.0400	2	$4 \frac{1}{2}$	1.8578	.1422
$\frac{7}{16}$	14	.3918	.0457	$2 \frac{1}{8}$	$4 \frac{1}{2}$	1.9828	.1422



**Table of Pitch Diameters  
For Metric Standard of Screw Threads**

Size mm.	Pitch		Size mm.	Pitch	
	Intl. Std.	French Std.		Intl. Std.	French Std.
2	.45	.50	20	2.50	2.50
3	.55	.50	22	2.50	2.50
4	.70	.75	24	3.00	3.00
5	.85	.75	26	...	3.00
6	1.00	1.00	27	3.00	...
7	1.00	1.00	28	...	3.00
8	1.25	1.00	30	3.50	3.50
9	1.25	1.00	32	...	3.50
10	1.50	1.50	33	3.50	3.50
11	1.50	...	34	...	3.50
12	1.75	1.50	36	4.00	4.00
14	2.00	2.00	38	...	4.00
16	2.00	2.00	39	4.00	...
18	2.50	2.50	40	...	4.00

**Double Depth of Threads**

Threads per Inch	Double Depth U. S. Standard Thread	Double Depth Sharp V Thread	Double Depth Whitworth Standard Thread	Threads per Inch	Double Depth U. S. Standard Thread	Double Depth Sharp V Thread	Double Depth Whitworth Standard Thread
2 1/4	0.5774	0.7698	0.5692	30	0.0433	0.0577	0.0427
2 3/8	0.5470	0.7293	0.5392	32	0.0406	0.0541	0.0400
2 1/2	0.5196	0.6928	0.5123	34	0.0382	0.0509	0.0377
2 5/8	0.4949	0.6598	0.4879	36	0.0361	0.0481	0.0356
2 3/4	0.4724	0.6298	0.4657	38	0.0342	0.0456	0.0337
2 7/8	0.4518	0.6025	0.4454	40	0.0325	0.0433	0.0320
3	0.4330	0.5774	0.4269	42	0.0309	0.0412	0.0305
3 1/4	0.3997	0.5329	0.3940	44	0.0295	0.0394	0.0291
3 1/2	0.3712	0.4949	0.3659	46	0.0282	0.0377	0.0278
4	0.3248	0.4330	0.3202	48	0.0271	0.0361	0.0267
4 1/2	0.2887	0.3849	0.2846	50	0.0260	0.0346	0.0256
5	0.2598	0.3464	0.2561	52	0.0250	0.0333	0.0246
5 1/2	0.2362	0.3149	0.2328	54	0.0241	0.0321	0.0237
6	0.2165	0.2887	0.2134	56	0.0232	0.0309	0.0229
7	0.1856	0.2474	0.1830	58	0.0224	0.0299	0.0221
8	0.1624	0.2165	0.1601	60	0.0217	0.0289	0.0213
9	0.1443	0.1925	0.1423	62	0.0209	0.0279	0.0206
10	0.1299	0.1732	0.1281	64	0.0203	0.0271	0.0200
11	0.1181	0.1575	0.1164	66	0.0197	0.0263	0.0194
12	0.1083	0.1443	0.1067	68	0.0191	0.0255	0.0188
13	0.0999	0.1332	0.0985	70	0.0185	0.0248	0.0183
14	0.0928	0.1237	0.0915	72	0.0180	0.0241	0.0178
15	0.0866	0.1155	0.0854	74	0.0175	0.0234	0.0173
16	0.0812	0.1083	0.0800	76	0.0171	0.0228	0.0167
18	0.0722	0.0962	0.0711	78	0.0167	0.0222	0.0164
20	0.0650	0.0866	0.0640	80	0.0162	0.0217	0.0160
22	0.0590	0.0787	0.0582	82	0.0158	0.0211	0.0156
24	0.0541	0.0722	0.0534	84	0.0155	0.0206	0.0152
26	0.0500	0.0666	0.0493	86	0.0151	0.0201	0.0148
27	0.0481	0.0642	0.0474	88	0.0148	0.0196	0.0145
28	0.0464	0.0619	0.0457	90	0.0144	0.0192	0.0142

Double Depth for U. S. Standard Thread..... =  $\frac{1.299}{N}$

Double Depth for Sharp V Thread..... =  $\frac{1.732}{N}$

Double Depth for Whitworth Standard Thread..... =  $\frac{1.281}{N}$



## 29° Screw Thread

### Acme Standard

The various parts of the 29° screw thread, Acme Standard, are obtained as follows

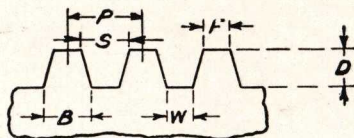
$$\text{Width of point of tool for screw or tap thread} = \frac{.3707}{\text{Threads per Inch}} - .0052$$

$$\text{Width of screw or nut thread} = \frac{.3707}{\text{Threads per Inch}}$$

$$\text{Diameter of tap} = \text{Diameter of screw} + .020$$

$$\text{Diameter of tap or screw at root} = \text{Diameter of screw} - \left( \frac{1}{\text{Threads per Inch}} + .020 \right)$$

$$\text{Depth of thread} = \frac{1}{2 \times \text{Threads per Inch}} + .010$$



**Table of Thread Parts**

	D	F	W	S	B
Threads per Inch	Depth of Thread	Width of Flat at Top of Tooth	Width of Flat at Bottom of Thread	Width of Space Between Top of Teeth	Width of Tooth at Root
1	.5100	.3707	.3655	.6293	.6345
1 1/3	.3851	.2781	.2729	.4721	.4773
1 1/2	.3433	.2471	.2419	.4196	.4248
1 3/4	.2957	.2118	.2066	.3596	.3648
2	.2600	.1854	.1802	.3146	.3198
2 1/2	.2100	.1483	.1431	.2517	.2569
3	.1767	.1236	.1184	.2097	.2149
4	.1350	.0927	.0875	.1573	.1625
5	.1100	.0741	.0689	.1259	.1311
6	.0933	.0618	.0566	.1049	.1101
7	.0814	.0530	.0478	.0898	.0950
8	.0725	.0463	.0411	.0787	.0839
9	.0656	.0412	.0360	.0699	.0751
10	.0600	.0371	.0319	.0629	.0681
12	.0517	.0309	.0257	.0524	.0576

## United States Standard Gage For Sheet and Plate Iron and Steel

Number of Gage	Approximate thickness in fractions of an inch	Approximate thickness in decimal part of an inch	Weight per square foot in ounces avoirdupois	Weight per square foot in pounds avoirdupois
0000000	$\frac{1}{2}$	.5	320	20.00
000000	$\frac{15}{32}$	.46875	300	18.75
00000	$\frac{7}{16}$	.4375	280	17.50
0000	$\frac{13}{32}$	.40625	260	16.25
000	$\frac{3}{8}$	.375	240	15.00
00	$\frac{11}{32}$	.34375	220	13.75
0	$\frac{5}{16}$	.3125	200	12.50
1	$\frac{9}{32}$	.28125	180	11.25
2	$\frac{17}{64}$	.265625	170	10.625
3	$\frac{1}{4}$	.25	160	10.00
4	$\frac{15}{64}$	.234375	150	9.375
5	$\frac{7}{32}$	.21875	140	8.75
6	$\frac{13}{64}$	.203125	130	8.125
7	$\frac{3}{16}$	.1875	120	7.5
8	$\frac{11}{64}$	.171875	110	6.875
9	$\frac{5}{32}$	.15625	100	6.25
10	$\frac{9}{64}$	.140625	90	5.625
11	$\frac{1}{8}$	.125	80	5.00
12	$\frac{7}{64}$	.109375	70	4.375
13	$\frac{5}{32}$	.09375	60	3.75
14	$\frac{5}{64}$	.078125	50	3.125
15	$\frac{9}{128}$	.0703125	45	2.8125
16	$\frac{1}{16}$	.0625	40	2.5
17	$\frac{9}{160}$	.05625	36	2.25
18	$\frac{1}{20}$	.05	32	2.
19	$\frac{7}{160}$	.04375	28	1.75
20	$\frac{3}{80}$	.0375	24	1.50
21	$\frac{11}{320}$	.034375	22	1.375
22	$\frac{1}{32}$	.03125	20	1.25
23	$\frac{9}{320}$	.028125	18	1.125
24	$\frac{1}{40}$	.025	16	1.
25	$\frac{7}{320}$	.021875	14	.875
26	$\frac{3}{160}$	.01875	12	.75
27	$\frac{11}{640}$	.0171875	11	.6875
28	$\frac{1}{64}$	.015625	10	.625
29	$\frac{9}{640}$	.0140625	9	.5625
30	$\frac{1}{80}$	.0125	8	.5
31	$\frac{7}{640}$	.0109375	7	.4375
32	$\frac{13}{1280}$	.01015625	$6\frac{1}{2}$	.40625
33	$\frac{3}{320}$	.009375	6	.375
34	$\frac{11}{1280}$	.00859375	$5\frac{1}{2}$	.34375
35	$\frac{5}{640}$	.0078125	5	.3125
36	$\frac{9}{1280}$	.00703125	$4\frac{1}{2}$	.28125
37	$\frac{17}{2560}$	.006640625	$4\frac{1}{4}$	.265625
38	$\frac{1}{160}$	.00625	4	.25
39	$\frac{15}{2560}$	.005859375	$3\frac{3}{4}$	.234375
40	$\frac{7}{1280}$	.00546875	$3\frac{1}{2}$	.21875
41	$\frac{27}{5120}$	.0052734375	$3\frac{3}{8}$	.2109375
42	$\frac{13}{2560}$	.005078125	$3\frac{1}{4}$	.203125
43	$\frac{25}{5120}$	.0048828125	$3\frac{1}{8}$	.1953125
44	$\frac{3}{640}$	.0046875	3	.1875



## Weight of Square and Round Bars of Steel

### In Pounds Per Linear Foot

Based on 489.6 lbs. per cubic foot.

For Wrought Iron deduct 2 per cent. For High-Speed Steel add 11 per cent.

Thickness or Diameter, Inches	Weight of Square Bar 1 foot long	Weight of Round Bar 1 foot long	Thickness or Diameter, Inches	Weight of Square Bar 1 foot long	Weight of Round Bar 1 foot long
$\frac{1}{32}$	.0033	.0026	3	30.60	24.03
$\frac{1}{16}$	.0133	.0104	$3\frac{1}{8}$	33.20	26.08
$\frac{1}{8}$	.0531	.0417	$3\frac{1}{4}$	35.92	28.20
$\frac{3}{16}$	.1195	.0938	$3\frac{3}{8}$	38.73	30.42
$\frac{1}{4}$	.2123	.1669	$3\frac{1}{2}$	41.65	32.71
$\frac{5}{16}$	.3333	.2608	$3\frac{5}{8}$	44.68	35.09
$\frac{3}{8}$	.4782	.3756	$3\frac{3}{4}$	47.82	37.56
$\frac{7}{16}$	.6508	.5111	$3\frac{7}{8}$	51.05	40.10
$\frac{1}{2}$	.8500	.6676	4	54.40	42.73
$\frac{9}{16}$	1.076	.8449	$4\frac{1}{4}$	61.41	48.24
$\frac{5}{8}$	1.328	1.043	$4\frac{1}{2}$	68.85	54.07
$\frac{11}{16}$	1.608	1.262	$4\frac{3}{4}$	76.71	60.25
$\frac{3}{4}$	1.913	1.502	5	85.00	66.76
$\frac{13}{16}$	2.245	1.763	$5\frac{1}{4}$	93.72	73.60
$\frac{7}{8}$	2.603	2.044	$5\frac{1}{2}$	102.8	80.77
$\frac{15}{16}$	2.989	2.347	$5\frac{3}{4}$	112.4	88.29
1	3.400	2.670	6	122.4	96.14
$1\frac{1}{16}$	3.838	3.014	$6\frac{1}{4}$	132.8	104.3
$1\frac{1}{8}$	4.303	3.379	$6\frac{1}{2}$	143.6	112.8
$1\frac{3}{16}$	4.795	3.766	$6\frac{3}{4}$	154.9	121.7
$1\frac{1}{4}$	5.312	4.173	7	166.6	130.9
$1\frac{5}{16}$	5.857	4.600	$7\frac{1}{4}$	178.7	140.4
$1\frac{3}{8}$	6.428	5.019	$7\frac{1}{2}$	191.3	150.2
$1\frac{7}{16}$	7.026	5.518	$7\frac{3}{4}$	204.2	160.3
$1\frac{1}{2}$	7.650	6.008	8	217.6	171.0
$1\frac{9}{16}$	8.301	6.520	$8\frac{1}{4}$	231.4	181.8
$1\frac{5}{8}$	8.978	7.051	$8\frac{1}{2}$	245.6	193.0
$1\frac{11}{16}$	9.682	7.604	$8\frac{3}{4}$	260.3	204.4
$1\frac{3}{4}$	10.41	8.178	9	275.4	216.3
$1\frac{13}{16}$	11.17	8.773	$9\frac{1}{4}$	291.1	228.5
$1\frac{7}{8}$	11.95	9.388	$9\frac{1}{2}$	306.8	241.0
$1\frac{15}{16}$	12.76	10.02	$9\frac{3}{4}$	323.2	253.9
2	13.60	10.68	10	340.0	267.0
$2\frac{1}{8}$	15.35	12.06	$10\frac{1}{4}$	357.2	280.6
$2\frac{1}{4}$	17.22	13.52	$10\frac{1}{2}$	374.9	294.4
$2\frac{3}{8}$	19.18	15.07	$10\frac{3}{4}$	392.9	308.6
$2\frac{1}{2}$	21.25	16.69	11	411.4	323.1
$2\frac{5}{8}$	23.43	18.40	$11\frac{1}{4}$	430.3	337.9
$2\frac{3}{4}$	25.00	20.20	$11\frac{1}{2}$	449.6	353.1
$2\frac{7}{8}$	28.10	22.07	$11\frac{3}{4}$	469.4	368.6

To compute the weight of Sheet Steel:

Multiply the thickness by 40.8; the result is the weight in pounds per square foot.

Example: A piece of Sheet Steel is .005" thick, its weight is  $.005 \times 40.8 = .204$  lbs. per square foot.

To compute the weight of Sheet Iron:

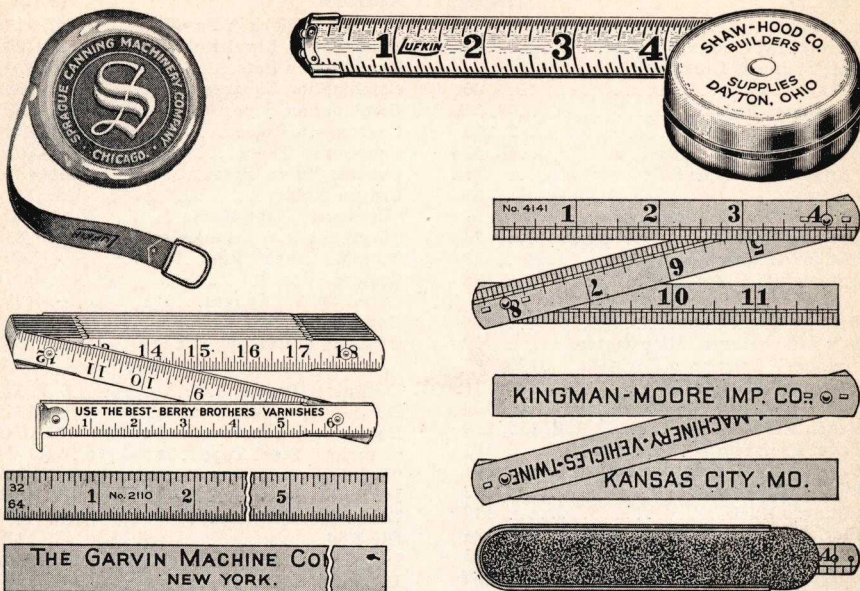
Multiply the thickness by 40; the result is the weight in pounds per square foot.

Example: A piece of Sheet Iron is .005" thick, its weight is  $.005 \times 40 = .200$  lbs. per square foot.





## Advertising Tapes and Rules



**The following Articles, bearing customers advertisement,  
in the manner shown above, appear in our separate**

### **ADVERTISING SPECIALTY CATALOG**

Pocket Steel and Linen Tapes.

Steel Tape-Rules. Folding Wood Rules.

Folding Steel Rules. Steel Scales.

Remembrance Advertising is the most effective, direct and lasting publicity. Our Tapes and Rules lend themselves especially well to this purpose. They have great appeal to recipient and advertiser, because:

They are very useful, and offered in patterns and graduations to nicely fit any line of business.

They are durable and bear imprint in a permanent manner, therefore prove a lasting advertisement.

They are neat and compact, easy to carry always.

Advertisement, be it lettering or trade-mark or both, appears attractively yet does not interfere with use.

They are high grade, fine appearing, create a quality impression, yet are moderate in price.

They are always suitable, appropriate to pass out at conventions, at holiday seasons, or throughout the year.

*But a few of the items in our Advertising Specialty Line are here shown. If you might distribute such a reminder or good will token or could interest any of your customers in so doing, please write for details and*

**Advertising Specialty Catalog**



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